Released Muliple Choice Items
Grade 10 Reading and Math

2004 Montana Criterion-Referenced Test

General Directions

This test contains six sessions: three in reading and three in mathematics. The sessions are made up of multiple-choice questions and questions for which you must show your work or write out your answers. Write your answers to all of the questions in your Student Response Booklet. Do not write in this test booklet. For the reading parts of the test, read each selection before answering the questions.

For each multiple-choice question, choose the best answer. Fill in the bubble in your Student Response Booklet that corresponds to your answer choice for that question.

Some questions ask you to show your work or to write out your answers. Write your answers to these questions in the spaces provided in your Student Response Booklet. Your answers must fit in the spaces provided. Any part of an answer outside the box might not be scored.

Be sure to answer all parts of each question, and to answer completely. For example, if a question asks you to explain your reasoning or show your work, be sure to do so. You can receive points for a partially correct answer, so try to answer every question.

This test session includes reading selections, multiple-choice questions, and a question for which you must write out your answer. After you read each selection, answer the questions about it in the spaces provided in your Student Response Booklet. You may not use a dictionary or any other reference tool during this session.

Read this article to learn about one teacher's unusual methods. After you have read the article, answer the questions that follow.

Superhero Science:
What Spider-Man and other comic-book heroes can teach you about science.

Hugh Westrup

Most science teachers would freak if they caught a student reading comic books in class. Not Jim Kakalios, a professor of physics at the University of Minnesota. Comic books are actually textbooks in his classroom. Kakalios uses comic-book characters and situations to help teach his students about concepts such as gravity, tension, and acceleration.

Kakalios calls his course Everything I Know of Science I Learned from Reading Comic Books. Even as a boy growing up in Queens, N.Y., Kakalios analyzed the science content in the illustrated tales of his favorite superheroes. He recalls one issue of *The Flash* in which the fastest man alive lost the ability to run at superspeed because he could no longer overcome friction. "I remember thinking to myself, 'Wait a minute, that's right!'" said Kakalios. "The writer of *The Flash* definitely had some knowledge of science."

Kakalios spoke to *Current Science* from his office in Minneapolis, which is filled with comic books and action figures. He helped explain how comic books have gotten science right and how they've gotten it wrong.

Spider-Man secretes webbing strong enough to hold him as he swings from building to building.

RIGHT. "Spider silk is one of the strongest materials in nature," said Kakalios. "Its *tensile strength* is incredible." Tensile strength is the ability of a solid substance to withstand *tension*, a force that acts to stretch things.

Steel wire has great tensile strength, but spider silk has more—at least five times more. Kakalios estimates that a strand of spider silk just 0.6 centimeter (0.25 inch) in diameter could support a weight of 2,722 kilograms (6,000 pounds). "Spider-Man's silk could easily support his weight as he swings from building to building," said Kakalios.

Superman leaps tall buildings in a single bound.

RIGHT. Superman was born to a race of beings that lived on Krypton, a planet with as much as ten times the gravity of Earth. "Anything on a planet with ten times Earth's gravity would weigh ten times more there than it does on Earth," said Kakalios. "Weight is the measure of gravity's force." Therefore, any creature living on Krypton would have to be extremely strong to lift so much weight.

When Superman moved to Earth, he discovered that his strength was such that he could easily leap over tall buildings. "It's similar to what happened to human astronauts when they went to the moon," explained Kakalios. "They were able to jump much higher than they could on Earth because gravity on the moon is far less."

The only <u>hitch</u> in this explanation, says

8 Kakalios, is Krypton itself. No such planet exists—and no planet like it exists either. . . .

Kakalios says a small rocky planet like Earth might have enormous gravity if it had, say, a small bit of *neutron star* at its core. A neutron star is one that results when a star reaches the end of its life and is destroyed in a massive explosion called a *supernova*. All that remains is a collapsed core—a small, dense neutron star about 25 kilometers (15 miles) across. A spoonful of neutron star would weigh more than a billion tons on Earth. Adding such a spoonful to the core of a rocky planet like Earth might give it the gravity of Krypton, says Kakalios.

> **Superman's parents sent Superman to Earth to save him from being killed by the impending explosion of Krypton.**

RIGHT. If Krypton were a rocky planet like Earth but with a neutron-star core, it would be extremely unstable and likely to explode. Why? Plate tectonics. Earth's rigid shell is made up of gigantic pieces, called *tectonic plates*, that are in constant motion, always colliding or pulling away from one another. As a result of those shifting plates, Earth is not a perfectly balanced ball of matter. Consequently, the extreme gravity of a neutron star at the center of Krypton would pull some parts of the planet more than others, tearing the planet apart.

At the end of his course, Kakalios asks each student to solve a comic-book physics problem. Kakalios's own favorite problem, one he hasn't solved yet, comes from an old issue of *The Atom*. In the issue, the world's smallest superhero and another character have become smaller than atoms. Kakalios recalled: "The Atom's companion says, 'We're smaller than an oxygen molecule. How are we breathing?' The Atom replies, 'I've never really figured that out.'"

Mark your answers to questions 1 through 5 in the section marked "Reading—Session 1" in your Student Response Booklet.

1. From what source did Hugh Westrup get most of the information included in the article?

    A. an interview with Kakalios

    B. a comic book Web site

    C. an issue of *The Flash*

    D. the University of Minnesota Web site

2. Which statement would be a scientific explanation for Superman's ability to leap tall buildings in a single bound?

    A. Superman would weigh ten times more on Earth than on Krypton.

    B. The gravity on Earth is ten times less than that on Krypton.

    C. The buildings on Earth are smaller than the buildings on Krypton.

    D. Superman would not experience gravity on Earth.

3

Use the dictionary entry below to answer question 3.

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hitch 1. *n.* an impediment or a delay.
2. *n.* a device used to connect one thing to
another.   **3.** *n.* a term of service.   **4.** *n.* a short
jerking motion; a tug.

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3.   Which meaning of <u>hitch</u> is used in paragraph 8?

   A.   definition 1

   B.   definition 2

   C.   definition 3

   D.   definition 4

4.   What is the **main** purpose of the section
     headings in this article?

   A.   to provide specific physics information

   B.   to mimic the style used in comic books

   C.   to give background information on
        superheroes

   D.   to introduce the information that follows

5.   What would be the **best** way to learn more
     about Jim Kakalios and his course?

   A.   buying several issues of comic books and
        analyzing their science content

   B.   writing to Hugh Westrup for more
        information

   C.   contacting the University of Minnesota
        for a course syllabus

   D.   finding a book of biographies of scientists

**Please go on to
the next page.**

This poem by Naomi Shihab Nye is about a father's desire to own a fig tree. Read the poem and answer the questions that follow.

My Father and the Figtree

    For other fruits my father was indifferent.
    He'd point at the cherry trees and say,
    "See those? I wish they were figs."
    In the evenings he sat by my bed
5   weaving folktales like vivid little scarves.
    They always involved a figtree.
    Even when it didn't fit, he'd stick it in.
    Once Joha was walking down the road and he saw a figtree.
    Or, he tied his camel to a figtree and went to sleep.
10   Or, later when they caught and arrested him,
    his pockets were full of figs.

    At age six I ate a dried fig and shrugged.
    "That's not what I'm talking about!" he said,
    "I'm talking about a fig straight from the earth—
15   gift of Allah!—on a branch so heavy it touches the ground.
    I'm talking about picking the largest fattest sweetest fig
    in the world and putting it in my mouth."
    (Here he'd stop and close his eyes.)

    Years passed, we lived in many houses, none had figtrees.
20   We had lima beans, zucchini, parsley, beets.
    "Plant one!" my mother said, but my father never did.
    He tended garden half-heartedly, forgot to water,
    let the okra get too big.
    "What a dreamer he is. Look how many things he starts
25   and doesn't finish."

    The last time he moved, I got a phone call.
    My father, in Arabic, chanting a song I'd never heard.
    "What's that?"
    "Wait till you see!"
30   He took me out to the new yard.
    There, in the middle of Dallas, Texas,
    a tree with the largest, fattest, sweetest figs in the world.
    "It's a figtree song!" he said,
    plucking his fruits like ripe tokens,
35   emblems, assurance
    of a world that was always his own.

—Naomi Shihab Nye

ID:177950 My Father and t B

6. In line 5, the speaker compares folktales to scarves in order to

    A. show it was the family's custom to weave scarves.

    B. emphasize the colorful details in the folktales.

    C. describe the appearance of the bedroom.

    D. suggest the child's anticipation for the folktales.

ID:177942 My Father and t D

7. What is the purpose of lines 8 through 11?

    A. to describe events that happened to the speaker's father

    B. to emphasize how common figs are in all folktales

    C. to show that the speaker likes figs as much as the father does

    D. to give examples of specific details from the father's folktales

ID:177947 My Father and t A

8. What is the tone of this poem?

    A. reflective

    B. remorseful

    C. disappointed

    D. humorous

ID:177955 My Father and t C

9. What is the **main** purpose of this poem?

    A. to show that the speaker has outgrown the amusing folktales

    B. to prove that the father could successfully grow figs

    C. to provide insight into the character of the father

    D. to describe differences in two generations of one family

ID:177954 My Father and t A

10. What is the **main** significance of the father's attachment to figs?

    A. Figs are comforting symbols of the father's traditional family heritage.

    B. Figs are vehicles through which the father can show his knowledge of fruit.

    C. His attitude toward figs and fig trees shows that the father is impractical.

    D. Talking about figs is the only way the father communicates with his child.

Please go on to the next page.

This story is about a man who has recently become a widower. Read the story and answer the questions that follow.

Subtraction and Addition
Kristen Kennedy

Joseph was looking out the window of his fourth-floor apartment onto Hamilton Street when he heard the buzzer summoning him to answer. That would be Sheila Baker from the Community Center checking in on him. Since he'd lost his balance and fallen on broken pavement several months ago, the people in his building had gotten social services involved and now they all kept a close watch on him. They'd been watching him ever since Evelyn died, keeping him under a sort of benevolent surveillance. He'd done the same when Ben Fleishman's wife died. Now it was his turn, and he didn't mind the attention. He especially liked it when Sheila came by to see him.

The intercom buzzer interrupted again, which rallied him to lean more of his body weight on the support of his cane. He didn't need to ask who was standing on the streets below wanting to see him, he thought, as he shuffled toward the door. He buzzed Sheila in, unlocked the door, and returned to his desk, where he'd been working all morning on a particularly troublesome mathematical equation.

Even though he always unlocked the door when Sheila arrived, she always made it a point to rap three or four times to announce herself.

"Come on in. You know it's open," Joseph called to her. Sheila's stare met him as he turned to greet her.

"You really should ask who's at your door before you buzz them in, Dr. Seigel."

Her amused concern touched him. "Sheila, please, for the hundredth time, call me Joseph."

"Joseph, you really should ask who's at your door before you buzz them in."

"Fair enough. I'll ask you next time if you're really you."

Sheila laughed deeply at this, as she often did at most things he said. She'd made it easy for him to let her in.

"So, what have you been doing this week? Oh, before I forget, remember the Community Center's brunch this weekend."

Joseph answered her dutifully, listing the details of his week, his comings and goings, and describing the equation he'd been struggling with all morning. While he spoke, Sheila casually inspected his apartment. He watched her move determinedly through his two small rooms, quickly scanning the bathroom for signs of <u>disarray</u>, and then returning to the kitchenette to take a quick look inside the refrigerator.

"Joseph, it looks like you're low on juice. I'll have the market send some over. Anything else you need?"

"No, Sheila, I'm fine. Some juice would be nice."

"All right, then, juice it is and brunch on Saturday, right? You can catch a ride with Mr. Fleishman and Mrs. Yoeffe."

"I'll be there."

"Good. I'll look forward to seeing you," she said, making her way toward the door. "And keep working on that problem. You'll figure it out. You're probably the only person I know who can."

"I'll keep working on it," he said.

She backed out of the door with a smile and a wave, warning him one more time to check who was at the door before buzzing someone into the building.

He looked forward to seeing her and her family again this weekend. Her daughter Mazie was the spitting image of her mom. Smart, too. One weekend at the Community Center, he had helped Mazie prepare for college entrance exams. She had picked up some fairly sophisticated algebra pretty quickly.

Tutoring Mazie reminded him of how he met his wife. He was a graduate student at the University of Chicago picking up extra money tutoring undergraduates. He met her in the library one night in the late fall after she responded to

9

11

his posting in the student union. She was having a hard time with calculus. That was all he knew about her until she walked up to the table where he was working. Her cheeks were flushed after coming in from the cold, and she rubbed her hands hard against her arms to warm herself. He detected the faint smell of chimney smoke and wool.

He smiled as he remembered that—sometimes his memories of his wife were overwhelming, but sometimes they were not so clear. There were times when one memory ran into the next and they all eventually disappeared. When he wanted to remember more, he often found that working on mathematical equations helped him picture and remember his wife more clearly. Maybe that was because that had been his pattern of work for most of their married life.

Joseph thought about this for quite some time as he looked blankly at the equation he'd been working on all morning. Suddenly, he thought that maybe working on equations was not a good way to spend this day. Today was different. Seeing Sheila reminded him of his loss, but thinking about tutoring reminded him of things that he still could do. He always wanted to remember things about his wife, but he decided he also wanted more things to remember.

"I wonder," he <u>mused</u> aloud, "if Mazie has any more exams to prepare for."

Mark your answers to questions 11 through 21 in the section marked "Reading—Session 1" in your Student Response Booklet.

ID:178010 Subtraction and C

11. In the first paragraph, the term "benevolent surveillance" suggests that Joseph's neighbors watch over him because they are

   A. curious.
   B. suspicious.
   C. kind.
   D. jealous.

ID:178020 Subtraction and B

12. What is the purpose of the first paragraph?

   A. It introduces all of the characters in the story.
   B. It gives important background information.
   C. It reveals the main conflict in the story.
   D. It explains the turning point of the story.

Please go on to the next page.

13. In paragraph 9, the phrase "She'd made it easy for him to let her in" **most likely** means that

    A. Sheila reminded Joseph more and more of his wife Evelyn.

    B. Sheila was responsible for Joseph's attitude about his own safety.

    C. Sheila's attitude encouraged Joseph to accept her help and friendship.

    D. Sheila's warnings about people at the door did not apply to her.

14. In paragraph 11, <u>disarray</u> means

    A. discomfort.

    B. disagreement.

    C. discouragement.

    D. disorder.

Use the dictionary entry below to answer question 15.

> **muse** **1.** *v.* to consider or say thoughtfully.
> **2.** *v.* engage in meditation.   **3.** *n.* a source of inspiration.   **4.** *n.* a guiding spirit.

15. Which meaning of <u>muse</u> is **most** like the meaning used in the last paragraph of this story?

    A. definition 1

    B. definition 2

    C. definition 3

    D. definition 4

16. Based on the story line, the action Joseph is **most likely** to take next is to

    A. refuse to go to the Community Center brunch.

    B. ask Sheila and the neighbors to leave him alone.

    C. become even more involved with his equations.

    D. become involved with tutoring Mazie again.

17. What is the symbolic meaning of the word "Subtraction" in the title?

    A. It represents Joseph's inability to solve his equation.

    B. It represents the death of Joseph's wife.

    C. It represents Sheila's departure.

    D. It represents the attitudes of the neighbors.

18. The main conflict in this story is between which characters?

    A. Joseph and Sheila

    B. Joseph and his neighbors

    C. Sheila and Mazie

    D. Joseph and himself

Please go on to the next page.

19. The reader can tell that this story is told in the third-person limited point of view because

   A. only Joseph's thoughts are revealed.

   B. the thoughts of all of the characters are revealed.

   C. both Joseph's and Sheila's thoughts are revealed.

   D. the narrator's thoughts are revealed.

20. The theme of this story is about

   A. helping children succeed.

   B. challenging the actions of others.

   C. caring for the elderly.

   D. dealing with grief.

21. This story is an example of

   A. a biography.

   B. realistic fiction.

   C. a mystery.

   D. historical fiction.

Write your answer to question 22 in the space provided for it in your Student Response Booklet.

22. What does Mazie symbolize in this story? Use specific information from the story to support your answer.

Please STOP. Do not go on to the next page. STOP

**NO TEST MATERIAL
ON THIS PAGE**

Reading
Session 2

This test session includes reading selections, multiple-choice questions, and a question for which you must write out your answer. After you read each selection, answer the questions about it in the spaces provided in your Student Response Booklet. You may not use a dictionary or any other reference tool during this session.

Read this poem about a person's experience with nature and answer the questions that follow.

Rough Country

Give me a landscape made of obstacles,
of steep hills and jutting glacial rock,
where the low-running streams are quick to flood
the grassy fields and bottomlands.
5   A place
no engineers can master—where the roads
must twist like tendrils up the mountainside
on narrow cliffs where boulders block the way.

Where tall black trunks of lightning-scalded pine
10 push through the tangled woods to make a roost
for hawks and swarming crows.
                                        And sharp inclines
where twisting through the thorn-thick underbrush,
scratched and exhausted, one turns suddenly

15   to find an unexpected waterfall,
not half a mile from the nearest road,
a spot so hard to reach that no one comes—

a hiding place, a shrine for dragonflies
and nesting jays, a sign that there is still
20   one piece of property that won't be owned.

—*Dana Gioia*

ID:170738 Rough Country C

23. In lines 1 through 4, the speaker is asking for a landscape

   A. with modern buildings.

   B. that he can own.

   C. with natural ruggedness.

   D. that is easily navigated.

ID:192349 Rough Country D

24. In lines 6 through 9, the poet uses figurative language to communicate an image of roads that are

   A. long and irregular.

   B. bumpy and steep.

   C. wide and curved.

   D. winding and narrow.

ID:194240 Rough Country C

25. In line 13, what is "twisting through the thorn-thick underbrush"?

   A. pine trees

   B. sharp inclines

   C. a person

   D. a waterfall

ID:170741 Rough Country A

26. In lines 12 through 15, which word **best** describes the mood expressed?

   A. surprise

   B. fear

   C. loneliness

   D. cheerfulness

ID:170743 Rough Country B

27. What would the poet **most likely** consider to be the ideal relationship between people and nature?

   A. People should not be allowed to freely explore nature.

   B. People should enjoy nature but should leave no mark on it.

   C. Nature should be modified to limit human intrusion.

   D. Nature is beautiful but people should ultimately control it.

ID:192350 Rough Country D

28. What is the poet's attitude toward nature?

   A. overwhelmed and intimidated

   B. defensive and fearful

   C. unconcerned and accepting

   D. respectful and protective

ID:192351 Rough Country C

29. Based on the message of the poem, the poet is **most likely** a

   A. hunter.

   B. politician.

   C. nature lover.

   D. park ranger.

Please go on to the next page.

Greyhound Lines, Inc.: The Greyhound Experience

The Greyhound Experience

Arriving at the Terminal

Please arrive at the Greyhound terminal one hour prior to departure. This will allow you to purchase a ticket (if you have not done so already), check baggage, and locate the gate where your bus will depart.

Boarding generally begins from 15 to 30 minutes before departure.

You might also visit a Greyhound Food Services restaurant or gift shop to pick up a snack or a magazine before the trip.

When boarding the bus, check the "boarding number" on your ticket. If a large number of passengers are scheduled to board, you may be asked to board in the order listed on your ticket— for example, those with boarding numbers 1–10 first, then 11–20, etc.

Note: It's important to observe some common-sense safety tips when traveling. Whether you're at a big-city terminal or a small-town depot, please observe the following:

- Do not leave baggage unattended.
- Do not accept gifts or packages from strangers.
- If you choose to leave the terminal, refrain from wandering away from well-traveled areas.
- If you observe any criminal activity, please report it at once to the nearest police official or Greyhound representative.

Welcome aboard!

Home | Greyhound Canada | Greyhound Mexico
Travel Planning | Purchase Tickets | Package Express
Business Services | Students | News Room | Careers
Contact Us | FAQs | Site Map | En Español
Tickets, Fares & Schedules

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http://www.greyhound.com/travel/arriving.shtml   3/23/04

The Greyhound Experience

The Anatomy of a Ticket

Greyhound has made your ticket easy to read, but here's a breakdown of all the critical items you may want to know before you begin your journey.

1. This is your departure city.
2. This is your destination city.
3. This is your estimated arrival time.* Dates on Greyhound tickets are broken down by day, month, and year.
4. This is your departure date and time.*
5. Similar to a flight number for an airline, this is the schedule number for your bus.
6. Depending on how many passengers are waiting to board at one particular time, you may be asked to board the bus according to the number here.
7. These are the ticket restrictions.**
8. This is your confirmation number. Please keep it handy when calling Greyhound.
9. This is the total amount paid, which includes the fare, tax, insurance, and any excess baggage charges.
10. This is the mileage to be traveled. The first number is the distance in this segment, and the second is total distance to be traveled for all segments.
11. This is the number of ticket coupons.

Please review the following notes:

*All times are local. If you are leaving New York and arriving Los Angeles, the departure time is New York local time. The arrival time is Los Angeles local time.
**If your ticket is non-refundable, the cancellation fee does not apply.

http://www.greyhound.com/travel/ticket.shtml   3/23/04

Please go on to the next page.

ID:170826 The Greyhound E B

30. If a bus is scheduled to leave at 4:00, at what time should a passenger plan to board?

    A. at 3:00
    B. after 3:30
    C. after 3:55
    D. at 4:00

ID:170831 The Greyhound E C

31. In addition to encouraging travelers to travel by bus, Greyhound would like customers to

    A. purchase their tickets online.
    B. bring very little luggage.
    C. visit their retail store and restaurant.
    D. avoid refund requests.

ID:192352 The Greyhound E B

32. Based on the information in the "Arriving at the Terminal" section, it would be incorrect to conclude that

    A. some criminal activity occurs in bus stations.
    B. passengers always board in the order listed on the ticket.
    C. tickets may be purchased at the depot.
    D. food will be available for purchase at the depot.

ID:192353 The Greyhound E D

33. According to the Note in the "Arriving at the Terminal" section, where would you be least safe?

    A. in a big-city terminal
    B. in a small-town depot
    C. in a gift shop in a terminal
    D. in a park outside a depot

ID:170830 The Greyhound E B

34. Greyhound **most likely** designed "The Anatomy of a Ticket" to

    A. help passengers have a safe trip.
    B. show ticket holders how to read information on their tickets.
    C. give ticket holders information to make changes in their itineraries.
    D. remind passengers to purchase the right tickets.

ID:170827 The Greyhound E A

35. According to the boarding number on the sample ticket, when would this passenger **most likely** be called to board the bus?

    A. in the first group of passengers
    B. after the second group of passengers
    C. after the third group of passengers
    D. in the last group of passengers

ID:170829 The Greyhound E B

36. If a customer needed to call about her ticket, which number on the ticket should the customer have readily available?

    A. schedule number
    B. confirmation number
    C. ticket coupon number
    D. bus number

ID:192384 The Greyhound E C

37. According to the information on the sample ticket, how many miles is it from Atlanta to Savannah?

    A.   2 miles
    B.   37 miles
    C.   274 miles
    D. 1157 miles

Reading
Session 3

This test session includes reading selections, multiple-choice questions, and a question for which you must write out your answer. After you read each selection, answer the questions about it in the spaces provided in your Student Response Booklet. You may not use a dictionary or any other reference tool during this session.

This article presents some information about food contamination and food poisoning. Read the article and answer the questions that follow.

Food Contamination: What You Don't Know Can Hurt You

The majority of American consumers feel that they take adequate precautions to prevent food contamination. In fact, a recent poll indicated that 88% of Americans feel they are safely storing and preparing foods in their homes. In addition, most people know that meat and poultry can carry harmful bacteria, but only 25% are aware that harmful bacteria live in dairy and egg products.

Since food contamination leads directly to food poisoning, this ignorance is killing us. Up to 9,000 people die every year due to food poisoning. Another 80 million people, or about one in three, suffer from a food-borne illness every year. The causes of food-borne illnesses are difficult to pinpoint. Poor refrigeration and inadequate hand-washing before and after food preparation can increase the risk of exposure. Some risks are not always within our control. For example, other factors, such as imported food supplies and restaurant dining, multiply the sources of potential contamination.

Scientists and public health officials <u>concur</u> that while consumers cannot eliminate the risk of exposure to food-borne illnesses, they can take four significant steps to prevent contamination when buying, preparing, and storing food at home.

1. **Use common sense when buying food.**
   - Shop last for perishable foods such as meat and milk.
   - Take your groceries home immediately after shopping.
   - Separate meat, seafood, and poultry from other foods. Their juices could contaminate nearby foods.

2. **Store food properly.**
   - Refrigerate or freeze perishable foods. Your refrigerator should be set to 40 degrees, your freezer to 0 degrees.
   - Use containers to prevent contamination in the refrigerator or in the kitchen.
   - Regularly clean and disinfect your refrigerator.

3. **Take precautions when preparing and cooking food.**
   - Wash your hands before, during, and after handling and preparing food. For example, if you prepare chicken, you should wash your hands and kitchen surfaces before peeling the potatoes.
   - Always wash fruits and vegetables before eating or cooking them.
   - Defrost foods on a plate in the refrigerator. Don't leave them to thaw on a kitchen counter.
   - Cook food immediately after defrosting.
   - Use different dishes and utensils for raw foods than you use for cooked foods.

4. **Cool and promptly store leftovers.**
   - Harmful bacteria grow at room temperature, so keep hot foods at about 140 degrees and cold food at 40 degrees or cooler.
   - Do not leave perishable foods out of the refrigerator for more than two hours.
   - Refrigerate or freeze leftovers in shallow containers or tightly wrapped bags.

3

Please go on to the next page.

Organisms in Food that Cause Illness in Humans

Organism	Illness/Food Poisoning	Time from Eating to Illness	Usual Source
Bacteria	Botulism	2 hours to 8 days, usually within 24 hours	soil, water, animals
	Salmonella	6 to 72 hours, usually 18 hours	humans, animals, poultry
Parasite	Trichinosis	24 hours to 7 days, usually 6 days	pork
	Tapeworm	up to 3 months, usually 18 days	beef, pork, fish

Mark your answers to questions 51 through 55 in the section marked "Reading—Session 3" in your Student Response Booklet.

ID:177924 Food Contaminat C

51. What is the author's **main** reason for including the statistics in the first two paragraphs?

   A. to argue for changes in mass food-production methods

   B. to prove that the techniques given later in the article work

   C. to reinforce the seriousness of the food contamination problem

   D. to explain the differences in types of food-borne illnesses

ID:177925 Food Contaminat A

52. What does <u>concur</u> mean as it is used in paragraph 3?

   A. agree

   B. doubt

   C. wonder

   D. deny

53. Based on information in the article, the best way grocery store managers could help prevent food contamination would be by

    A. lowering prices on popular perishable foods.

    B. ensuring that the stores' refrigeration is adequate.

    C. offering a wider variety of organic and natural foods.

    D. keeping perishable foods near the entrance.

54. How are the four points about food handling presented?

    A. from least to most important

    B. from specific to general

    C. in order of personal preference

    D. in logical order of sequence

55. What is the **main** purpose of the chart?

    A. to explain the symptoms of types of food poisoning

    B. to show some sources of food contamination

    C. to warn people to avoid the listed organisms

    D. to emphasize that humans are the major cause of contamination

This is the last chapter of Winesburg, Ohio, *a novel by Sherwood Anderson about people living in the town of Winesburg, Ohio, near the end of the nineteenth century. In this chapter, George Willard, a young resident, is leaving Winesburg for a new life in the city. Read the chapter and answer the questions that follow.*

The Departure
from *Winesburg, Ohio*
Sherwood Anderson

On the station platform everyone shook the young man's hand. More than a dozen people waited about. Then they talked of their own affairs. Even Will Henderson, who was lazy and often slept until nine, had got out of bed. George was embarrassed. Gertrude Wilmot, a tall thin woman of fifty who worked in the Winesburg post office, came along the station platform. She had never before paid any attention to George. Now she stopped and put out her hand. In two words she voiced what everyone felt. "Good luck," she said sharply and then turning went on her way.

When the train came into the station George felt relieved. He scampered hurriedly aboard. Helen White came running along Main Street hoping to have a parting word with him, but he had found a seat and did not see her. When the train started Tom Little punched his ticket, grinned and, although he knew George well and knew on what adventure he was just setting out, made no comment. Tom had seen a thousand George Willards go out of their towns to the city. It was a commonplace enough incident with him. In the smoking car there was a man who had just invited Tom to go on a fishing trip to Sandusky Bay. He wanted to accept the invitation and talk over details.

George glanced up and down the car to be sure no one was looking, then took out his pocketbook and counted his money. His mind was occupied with a desire not to appear <u>green</u>. **3** Almost the last words his father had said to him concerned the matter of his behavior when he got to the city. "Be a sharp one," Tom Willard had said. "Keep your eyes on your money. Be awake. That's the ticket. Don't let anyone think you're a greenhorn."

After George counted his money he looked out of the window and was surprised to see that the train was still in Winesburg.

The young man, going out of his town to meet the adventure of life, began to think but he did not think of anything very big or dramatic. Things like his mother's death, his departure from Winesburg, the uncertainty of his future life in the city, the serious and larger aspects of his life did not come into his mind.

He thought of little things—Turk Smollet wheeling boards through the main street of his town in the morning, a tall woman, beautifully gowned, who had once stayed overnight at his father's hotel, Butch Wheeler the lamp lighter of Winesburg hurrying through the streets on a summer evening and holding a torch in his hand, Helen White standing by a window in the Winesburg post office and putting a stamp on an envelope.

The young man's mind was carried away by his growing passion for dreams. One looking at him would not have thought him particularly sharp. With the recollection of little things occupying his mind he closed his eyes and leaned back in the car seat. He stayed that way for a long time and when he aroused himself and again looked out of the car window the town of Winesburg had disappeared and his life there had become but a background on which to paint the dreams of his manhood.

27

ID:177978 The Departure B

56. In the first paragraph, the description of the townspeople's behavior suggests that they are

A. deeply saddened by George's departure.

B. supportive of George and wish him well.

C. irritated that George is leaving them.

D. confident that George will be successful.

ID:177981 The Departure D

Use the dictionary entry below to answer question 57.

green 1. *n.* the hue of that portion of the color spectrum that lies between yellow and blue. **2.** *n.* leafy plant or plant parts eaten as a vegetable. **3.** *adj.* pale and sickly in appearance; wan. **4.** *adj.* lacking sophistication or worldly experience; naïve.

57. Which meaning of <u>green</u> is **most** like the meaning used in paragraph 3?

A. definition 1

B. definition 2

C. definition 3

D. definition 4

ID:177982 The Departure B

58. The advice Tom Willard gives George suggests that Tom

A. thinks his son should stay in Winesburg.

B. fears city people will take advantage of his son.

C. wishes his son had more money.

D. believes that his son will achieve his dreams.

ID:177985 The Departure D

59. Which literary technique is used in the last sentence of this chapter?

A. a simile

B. personification

C. hyperbole

D. a metaphor

ID:181131 The Departure C

60. To find factual information about the life of Sherwood Anderson, where in the library should you look **first**?

A. the newspaper and magazine section

B. the fiction section

C. the reference section

D. the travel and tourism section

Please go on to the next page.

This article describes a different type of job interview. Read the article and answer the questions that follow.

Informational Interviewing: Choosing a Career

Have you ever wondered what working at a museum would be like? Are you considering a career in medicine? Or are you still unsure of the career options available to you?

If you've answered yes to any of these questions, then consider a round of informational interviews with people whose jobs you're interested in learning more about. Informational interviews are job and career fact-finding missions. They are meetings you request with people whose work interests you.

In many ways, an informational interview is the best kind of job interview, because **you** get to ask the questions. There's no pressure to perform in the same way as in a traditional job interview. Another plus is that most working professionals welcome the opportunity to talk to others about what they do, so you'll find they're often quite willing to meet with you. All you need to do is ask.

Here are some basic tips for requesting and conducting informational interviews. Use them as a guide. Let your interests and goals shape the specific questions you'd like answered.

Make Contact
- Once you've narrowed down a few potential career paths, conduct a mental inventory of any friends, family members, or acquaintances who may already be working in those fields. If you don't know anyone, then consult the phone book or do a Web search to find local businesses or professional organizations that fit your career interests. You may also want to pay your town or city employment office a visit to generate interview leads.
- Once you've made a list of the businesses or organizations in your area where you'd like to interview, give them a call. Since you'll most

likely speak with a receptionist, tell him or her that you'd like the name and contact information of the person or persons whose role most closely fits the career path you'd like to learn more about.
- Most organizations and businesses have Web sites that provide information on how to contact key staff members. You may e-mail a request for an informational interview, and then follow up with a phone call to finalize the details. Don't be discouraged if your first request isn't answered. Give your contact a week to respond, and then follow up. If you still don't get a response, consider meeting with someone else at the company.

Prepare
- Dress professionally.
- Be on time.
- Treat this meeting as you would a job interview. The contacts you make in the research stage of job hunting may one day be your colleagues or potential employers.
- Make a list of questions you'd like to ask. Let your interests do the talking here. Some good general questions include

  - Tell me about your role here. What's an average day like?
  - What kind of training and education did you need to prepare for this kind of work?
  - What do you like most about your job? What do you like least?
  - What are the greatest challenges you face in this line of work?
  - What opportunities do you have for professional development and advancement?
  - In what direction is this field moving? How can someone just starting out prepare to meet these changes?

Please go on to the next page.

- What's the salary range for careers in this field?
- What sort of skills, interests, and abilities are important to success in this field?
- Where else should I be looking to find information about this industry?
- Who else do you know that I should talk to? Can you put me in touch with them?

Follow Up

Within a week of your meeting, send a thank-you note to the person who interviewed you. If your contact offered to put you in touch with a colleague or provide supplemental information, mention that in your note and include a phone number or E-mail address where he or she can get in touch with you. It's always a good idea to touch on any memorable parts of your conversation—common interests, an amusing anecdote, or a good piece of advice. Doing so shows that you are engaged and serious about your research, as well as polished and sophisticated in your professional interactions.

<div align="center">Checklist for Informational Interview</div>

✓	DO	DON'T
	Be clear and direct	Ask for a job
	Act professionally	Limit your contacts
	Listen attentively	Expect your contact to do all of the talking
	Ask questions	Forget to send a thank-you note
	Analyze information	
	Write a thank-you note	
	Follow up on leads	

For further information on informational interviewing, try the Internet Web links listed below. Each Web link is followed by a brief description of its contents and the Internet address where it can be found.

Quintessential Careers: **Informational Interviewing Tutorial**
> Learn the "how-to" basics for one of the most important networking and job-hunting tools available to job-seekers: **informational interviewing**.
> www.quintcareers.com/informational_interviewing.html

Informational Interviewing Do's and Don'ts
> A helpful list of do's and don'ts for your **informational interview**.
> www.quintcareers.com/informational_interviewing-dos-donts.html

Career Center—**Informational Interviewing**
> Lists the benefits of **informational interviewing**.
> Career.Berkeley.edu/CareerExp/InfoInterview.stm

Career Planning
> A volunteer **Informational Interviewing** Network that provides employees with a resource to help make thoughtful and informed decisions.
> web.mit.edu/hr/careers/infoint.html

Please go on to the next page.

ID:177962 Informational I B

61. According to the article, informational interviews are less stressful than regular job interviews because

  A. more preparation is necessary for informational interviews.

  B. the person requesting the interview is not being evaluated for a job.

  C. informational interviews do not produce as many helpful results as regular interviews.

  D. people who participate in informational interviews are usually friends.

ID:177957 Informational I D

62. According to this article, what should a person do **directly** after narrowing down several areas of interest?

  A. Contact businesses to set up interviews.

  B. Prepare lists of questions.

  C. Send letters requesting meetings.

  D. Identify people who work in those areas.

ID:177959 Informational I A

63. In the section titled "Prepare," what does the phrase "Let your interests do the talking" mean?

  A. Ask the questions that you really want answered.

  B. Be sure to take charge of the discussion.

  C. Invite your contact to comment on your prospects.

  D. Find out what you need to do to succeed in the field.

ID:177969 Informational I D

64. A person who requests an informational interview is acting **most** like

  A. an interested teacher.

  B. an inexperienced student.

  C. an eager employee.

  D. a serious researcher.

ID:177961 Informational I C

65. What is the **main** reason there are bullets next to some paragraphs?

  A. They show the correct format for interview questions.

  B. They provide the reader with introductory information.

  C. They help the reader gain access to information.

  D. They illustrate the preferred business style of communication.

ID:177975 Informational I A

66. At which Internet Web link would you **most likely** find a step-by-step explanation of how to arrange an informational interview?

  A. Quintessential Careers: **Informational Interviewing Tutorial**

  B. **Informational Interviewing** Do's and Don'ts

  C. Career Center—**Informational Interviewing**

  D. Career Planning

Please go on to the next page.

67. Which strategy is used to capture the reader's interest?

    A. Questions are directed to the reader in the first paragraph.

    B. Sophisticated vocabulary is used.

    C. A helpful checklist is included for the reader.

    D. Bold headings are included above related ideas.

68. Which sentence **best** summarizes the author's advice about informational interviewing?

    A. Do not expect your contact to have all of the answers.

    B. Do not forget to ask about salary ranges in the field.

    C. Be prepared to discuss your professional background in detail.

    D. It is important to learn as much as possible about a field before committing to it.

69. This article consists of information that is based on

    A. only the author's opinion.

    B. a mixture of fact and opinion.

    C. proven facts from scientific research.

    D. opinions from employment agency owners.

70. Who would benefit the **most** from using the Internet Web sites listed at the end of the article?

    A. a recent graduate who is serious about finding a career

    B. a person who works in the Internet industry

    C. someone who is responsible for hiring employees at a large corporation

    D. someone who is very experienced in informational interviewing

71. What would be the **best** way to learn more facts about informational interviewing?

    A. Ask other students what they know about the process.

    B. Look up "informational interviewing" in a dictionary.

    C. Type "informational" into an Internet search engine.

    D. Access the Internet Web sites listed at the end of the article.

Please go on to the next page.

Write your answer to question 72 in the space provided for it in your Student Response Booklet.

72. Identify one job or career that you would like to know more about. Use the information from this article to explain how you could find out as much information as possible about that job or career.

Please STOP. Do not go on to the next page. STOP

Mathematics
Session 1 (Calculator)

This test session includes multiple-choice questions and a question for which you must show your work or write out your answer. You may use a calculator during this session.

Mark your answers to questions 1 through 24 in the section marked "Mathematics—Session 1 (Calculator)" in your Student Response Booklet.

ID:175969 RD120231-revenu B

1. The graph below shows the monthly revenue and expenses for a business.

    (Profit = revenue – expenses.)

    Key:
    □ Revenue
    ◆ Expenses
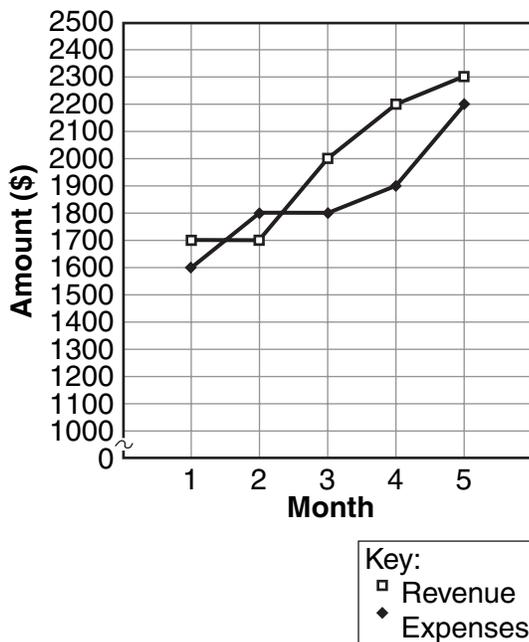
    What was the **total** profit over the period shown in the graph?

    A. $500
    B. $600
    C. $700
    D. $800

ID:191062 A

2. Point *P* is located at (8, 4) in the coordinate plane. What is the image of point *P* after a rotation of 90° counterclockwise about the origin?

    A. (–4, 8)
    B. (–8, 4)
    C. (4, –8)
    D. (8, –4)

IID:175994 D

3. After grading a mathematics test, Mr. Ansari decides to add 5 points to each student's score. Which statistic will **not** be affected by this change?

    A. mode
    B. mean
    C. median
    D. range

ID:175957 C

4. If $x \neq 0$, which expression is between 0 and $\frac{x}{2}$?

    A. $-0.75x$
    B. $-0.25x$
    C. $0.25x$
    D. $0.75x$

Please go on to the next page.

5. The table below shows the time Franklin spent practicing the cello over a period of three weeks.

Week	Practice Hours
1	10.5
2	11.0
3	11.5

If p represents the number of practice hours and w represents the number of weeks, which equation describes the relationship in this table?

A. $p = \frac{w}{2} + 10$

B. $p = \frac{w}{2} + 10.5$

C. $p = 2w + 10$

D. $p = 2w + 10.5$

6. Based on Jared's past results, the probability that he will successfully make a basketball free throw is $\frac{3}{5}$. If Jared shoots two free throws, what is the probability that he will make **both** of them?

A. $\frac{6}{25}$

B. $\frac{9}{25}$

C. $\frac{6}{10}$

D. $\frac{4}{10}$

7. The graph below shows the temperature of a liquid that is being heated over time.
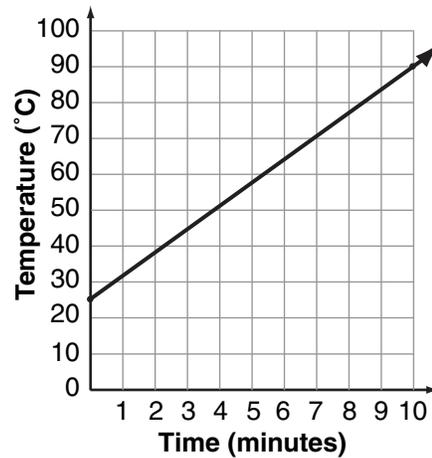
What quantity does the slope of the line represent?

A. the initial temperature

B. the final temperature

C. the total change in temperature

D. the rate of change in temperature

8. If $0 < x < 1$, which expression has the greatest value?

A. $\frac{1}{x}$

B. $\sqrt{x}$

C. x^2

D. x

Please go on to the next page.

9. A consumer testing company studied several brands of electric stoves to see how long it took to boil 4 cups of water in a covered saucepan at the highest burner setting. Each stove was tested 20 times. The box-and-whisker plots below show the results of this study.

Minutes
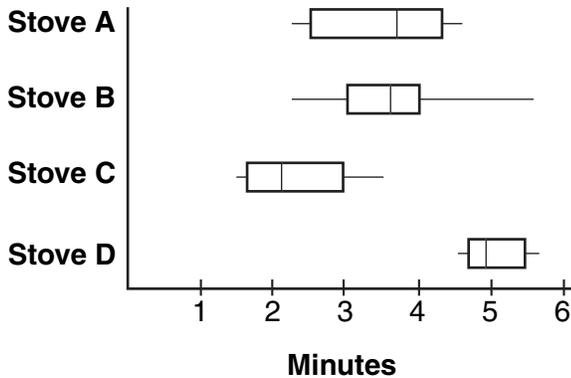
Which stove is most predictable in terms of the time it takes to boil water?

A. Stove A

B. Stove B

C. Stove C

D. Stove D

10. Rafael is recording the numbers of cars and trucks that pass by on a road. So far, he has recorded 440 cars and 400 trucks. Based on these data, how many of the next 60 vehicles should he expect to be cars?

A. 26

B. 29

C. 31

D. 55

11. The graph below shows the number of students enrolled in calculus over a 6-year period, with a line of best fit superimposed on the data.
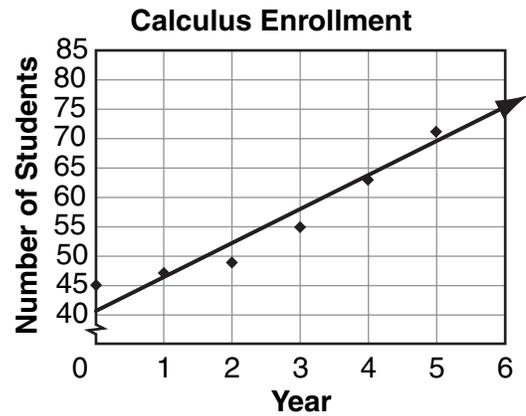
Based on the line of best fit, which value is the best prediction for the number of students who will enroll in calculus in Year 8?

A. 75

B. 81

C. 87

D. 92

12. A set of numbers is **closed** with respect to addition if the sum of any two numbers in the set is also in that set. Which set is closed with respect to addition?

A. odd integers

B. fractions between 0 and 1

C. integers between 0 and 10

D. integers ending with 0

Please go on to the next page.

13. In the figure below, *PQRS* is a trapezoid with $\overline{PQ} \parallel \overline{RS}$.
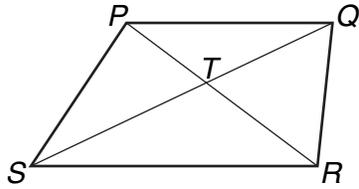
Which triangles are similar?

A. $\triangle PQR \sim \triangle RPS$

B. $\triangle PQT \sim \triangle RST$

C. $\triangle PRS \sim \triangle QSR$

D. $\triangle PST \sim \triangle RQT$

15. Which scatter plot shows a positive linear relationship between units produced and hours worked?

A.

B.

C.

D.

Please go on to the next page.

16. Which statement about the properties of specific quadrilaterals is true?

   A. All properties of squares are also properties of rectangles.

   B. All properties of squares are also properties of rhombuses.

   C. All properties of parallelograms are also properties of rectangles.

   D. All properties of rhombuses are also properties of parallelograms.

17. Catie has 30 CDs. She is going to buy 2 new CDs each month for the next x months. If n represents the number of CDs that she has bought after x months, which equation shows the correct relationship between x and n?

   A. $n = 2x + 30$

   B. $n = 30x + 2$

   C. $x = 2n + 30$

   D. $x = 30n + 2$

18. Dalton is designing new artwork for the outside of a soft-drink can. The can is 12 cm tall and 7 cm in diameter. The top and bottom of the can will not have artwork. What is the area of the surface that **will** have artwork?

   A. 84 cm^2

   B. 264 cm^2

   C. 572 cm^2

   D. 1847 cm^2

19. Bob must type an average of 60 words per minute during a 5-minute typing test in order to pass. During the first 3 minutes of the test, Bob typed at a rate of 54 words per minute. To pass, at what rate will he have to type for the remaining 2 minutes?

   A. 46 words per minute

   B. 57 words per minute

   C. 66 words per minute

   D. 69 words per minute

20. Barry Bonds hit his 600th home run in his 2394th baseball game. If he continues to hit home runs at the same rate, in which game will he hit his 700th home run?

   A. 2654th

   B. 2749th

   C. 2793rd

   D. 2836th

21. Biologists estimate that about 1500 polar bears currently live in Alaska. Between births and deaths, the population is growing at a rate of approximately 2% per year. Based on this information, what do the biologists expect the number of polar bears in Alaska to be five years from now?

   A. 1530

   B. 1604

   C. 1650

   D. 1656

22. The midpoint of segment PQ is M. The coordinates of P are (2, 3), and the coordinates of M are (7, m). What are the coordinates of Q?

A. $(12, 2m - 3)$

B. $(12, m + 3)$

C. $\left(9, \dfrac{m+3}{2}\right)$

D. $(9, m + 3)$

23. The slowest mammal, the three-toed sloth, moves at a maximum speed of 13.2 feet per minute, while the fastest mammal, the cheetah, runs at a maximum speed of 70 miles per hour. How many times faster does the cheetah run than the sloth?

A.   5.3 times faster

B.   11.3 times faster

C.   16.6 times faster

D. 466.7 times faster

24. An advertisement reported that 85% of dentists surveyed recommended ToothBrite toothpaste to their patients. If 74 dentists recommended the toothpaste, how many dentists in the survey did **not** recommend ToothBrite toothpaste?

A. 11

B. 13

C. 63

D. 87

Write your answer to question 25 in the space provided for it in your Student Response Booklet. Show all of your work.

ID:176028

25. The students in Mr. Taylor's class are studying quadrilaterals.

   a. Kendrell states that all rectangles are similar.

   •   If this statement is true, explain why it is true.

   •   If this statement is not true, sketch two rectangles that serve as a counterexample. Explain why the rectangles you drew prove that Kendrell's statement is not true.

   b. Christina states that all squares are similar.

   •   If this statement is true, explain why it is true.

   •   If this statement is not true, sketch two squares that serve as a counterexample. Explain why the squares you drew prove that Christina's statement is not true.

   BE SURE TO LABEL YOUR RESPONSES (a) AND (b).

Please STOP. Do not go on to the next page. STOP

**NO TEST MATERIAL
ON THIS PAGE**

Mathematics
Session 2A (Calculator)

This test session includes multiple-choice questions and a question for which you must show your work or write out your answer. You may use a calculator during this session.

Mark your answers to questions 26 through 35 in the section marked "Mathematics—Session 2A (Calculator)" in your Student Response Booklet.

ID:166904 D

26. A company is having a sale on 5 styles of shirts, each of which comes in 4 different colors. The company also has 3 styles of jeans on sale. How many different outfits (one pair of jeans and one shirt) could be purchased at this sale?

 A. 15 outfits
 B. 30 outfits
 C. 45 outfits
 D. 60 outfits

ID:166952 C

27. Which inequality has the same solution set as $9x + 2 \leq -3x - 8$?

 A. $6x + 2 \leq -8$
 B. $6x + 2 \geq -8$
 C. $12x + 2 \leq -8$
 D. $12x + 2 \geq -8$

ID:166150 RD80219-tree_an A

28. The angle of observation to the top of a tree that is 30 feet away has a measure of 15°, as shown in the figure below.

30 ft.

not to scale
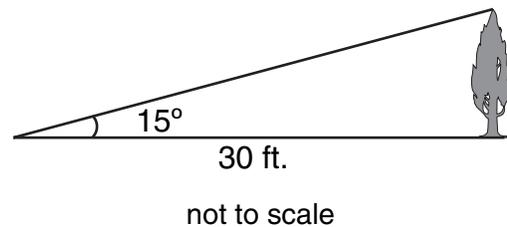
Which expression could be simplified to find the height of the tree?

 A. $30 \tan 15°$
 B. $\dfrac{\tan 15°}{30}$
 C. $30 \sin 15°$
 D. $\dfrac{\sin 15°}{30}$

29. Last year 7 students graduated from Parkview College with degrees in mathematics. Their ages were 21, 21, 22, 23, 24, 27, and 43. When the college reports to the press the statistics on these graduates, which measure will give the strongest impression that the mathematics program welcomes students of all ages?

A. the mean

B. the median

C. the mode

D. the range

30. A brochure for a state park provides these descriptions of four hiking trails.

- Lake Ridge Trail — length: 4.1 km, elevation gained: 390 meters

- North Pass Trail — length: 5.8 km, elevation gained: 430 meters

- Meadow Trail — length: 6.2 km, elevation gained: 610 meters

- Smith's Peak Trail — length: 8.9 km, elevation gained: 790 meters

If steepness is defined as the ratio of the change in elevation to the length of a trail, which trail is steepest?

A. Lake Ridge Trail

B. North Pass Trail

C. Meadow Trail

D. Smith's Peak Trail

31. The chart below shows the charges at Harry's Garage.

Harry's Garage
Charges—
  Cost of parts
    plus
  Labor at $40 per hour
    plus
  $5 shop fee per job

Parts to repair Amanda's car will cost $120. If the mechanic works on her car for x hours, which expression can be used to find her total cost in dollars?

A. $125 + 40x$

B. $120 + 40x$

C. $160 + 5x$

D. $165x$

32. Hector is designing an "EXIT" sign.

- Each of the letters in the sign will be 12 centimeters wide except for the "I," which will be 8 centimeters wide.

- Each space between two adjacent letters will be 6 centimeters wide.

- The finished "EXIT" sign will be 1 meter wide with an equal amount of space on the left and right sides of the word "EXIT."

How far from the left edge of the sign should the first letter start?

A. 16 centimeters

B. 19 centimeters

C. 21 centimeters

D. 32 centimeters

This test session includes multiple-choice questions and questions for which you must show your work or write out your answer. You may NOT use a calculator during this session.

Mark your answers to questions 37 through 46 in the section marked "Mathematics—Session 2B (No Calculator)" in your Student Response Booklet.

ID:166139 RD80207-globe.c A

37. The globe below has a radius of 6 inches.

What is the circumference of the globe at the equator?

A. 12π inches

B. 24π inches

C. 36π inches

D. 144π inches

ID:166915 C

Use the table below to answer question 38.

x	$f(x)$
1	1.5
2	2.5
3	3.5
4	4.5

38. Which function would produce this table?

A. $f(x) = 0.5x$

B. $f(x) = 0.5x + 1$

C. $f(x) = x + 0.5$

D. $f(x) = x + 1.5$

ID:166924 B

39. A function is described by $f(x) = 2 - 3x$. What is the value of the function when $x = 6$?

A. −34

B. −16

C. 16

D. 34

46

Use the system of equations below to answer question 40.

$$\begin{cases} 4x + 3y = 12 \\ 5x - 2y = 10 \end{cases}$$

40. Which graph models this system of equations?

A.

B.

C.

D.
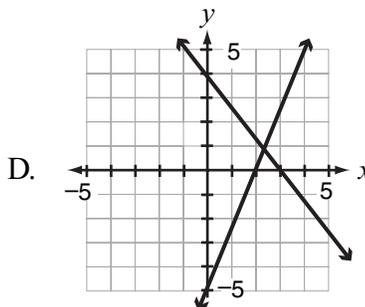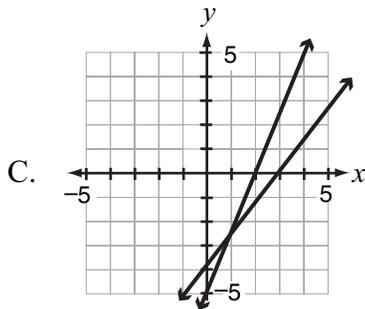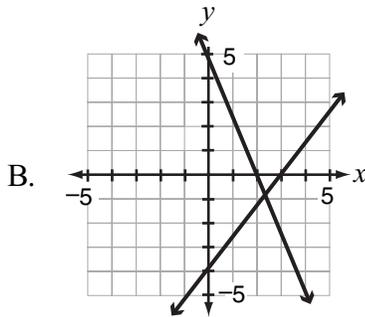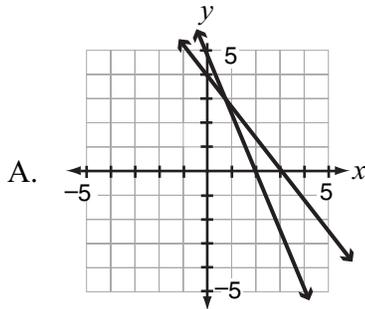
41. Consider the equation $R = 3p + 2q$ where p and q can each be any real number. Which change will always result in an **increase** in R?

   A. an increase in both p and q

   B. a decrease in both p and q

   C. an increase in p with a decrease in q

   D. a decrease in p with an increase in q

Use the figure of a capped bottle below to answer question 42.
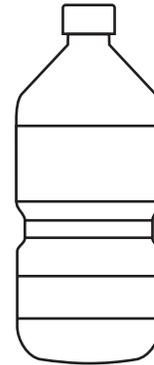
42. Which of the following is the best geometric description of the cap?

   A. an open hemisphere

   B. a closed hemisphere

   C. a cylinder with open bases

   D. a cylinder with one open base

43. The sum of two numbers is –11. One number is 8 more than the other number. Which system of equations models these two sentences?

A. $\begin{cases} x + y = -11 \\ x = y + 8 \end{cases}$

B. $\begin{cases} x - y = -11 \\ x + y = 8 \end{cases}$

C. $\begin{cases} x + y = 11 \\ 8 - x = y \end{cases}$

D. $\begin{cases} x - y = -11 \\ x - 8 = y \end{cases}$

44. Side $\overline{AB}$ of $\triangle ABC$ is shown below. Point A has coordinates $(0, 0)$ and point B has coordinates (p, q).
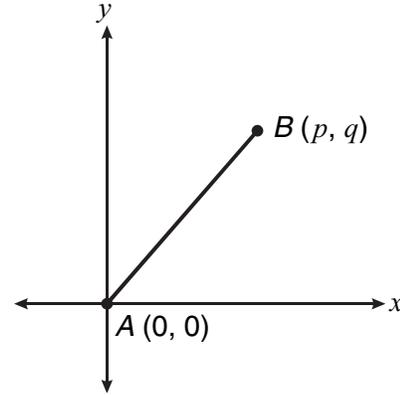
Which ordered pair could be assigned to the coordinates of a point C so that $\triangle ABC$ would be an isosceles triangle?

A. $\left(\dfrac{p}{2}, \dfrac{q}{2} \right)$

B. $(2p, 2q)$

C. $(2p, 0)$

D. $\left(0, \dfrac{q}{2} \right)$

This test session includes multiple-choice questions and questions for which you must show your work or write out your answer. You may NOT use a calculator during this session.

Mark your answers to questions 49 through 69 in the section marked "Mathematics—Session 3 (No Calculator)" in your Student Response Booklet.

ID:175973 RD120233-studen C

49. The table below shows the number of students in grades 7 through 12 at a junior-senior high school.

Grade	Number of Students
7	45
8	47
9	49
10	55
11	65
12	70

Kevin wants to make a histogram that clearly shows how many more students there are in the upper grades than in the lower grades. Which set of axes would be best for him to use?

A.

B.

C.

D.

52
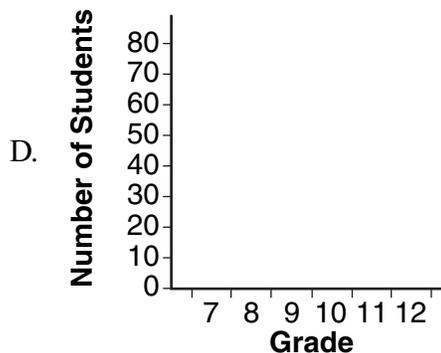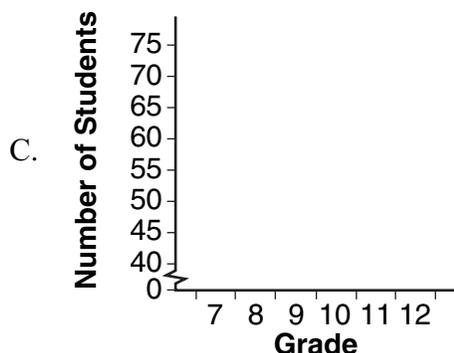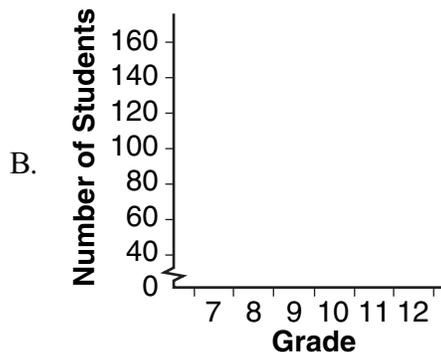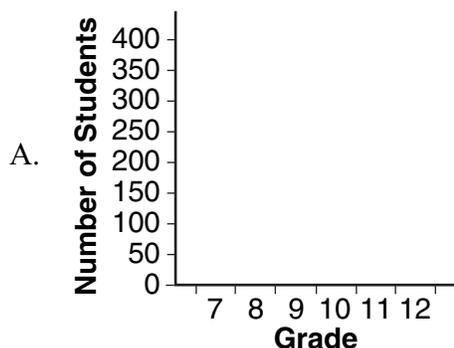
50. Carmella is designing a new layout for her living room, which measures 12 feet by 16 feet. She wants to make a scale drawing of the room on 8.5- by 11-inch graph paper. Which scale would make the **largest** drawing and still fit on this graph paper?

    A. 2 inches : 1 foot

    B. 1 inch : 2 feet

    C. 1 inch : 4 feet

    D. 3 inches : 4 feet

51. There are 110 people at a meeting at which bagels are served. Based on previous experience, the caterer estimates that each person will eat an average of $\frac{1}{2}$ bagel. If bagels come in boxes of 6, which equation could be used to find the number of boxes, b, of bagels needed?

    A. $\frac{1}{2}(6b) = 110$

    B. $6b = \frac{1}{2}(110)$

    C. $6b + \frac{1}{2} = 110$

    D. $6b - \frac{1}{2} = 110$

Use the conversion factor below to answer question 52.

$$1 \text{ micrometer} = 1 \times 10^{-6} \text{ meter}$$

52. The average diameter of a red blood cell is 7.5 micrometers. What is the diameter of a red blood cell in meters?

    A. 0.00075 meters

    B. 0.000075 meters

    C. 0.0000075 meters

    D. 0.00000075 meters

53. In the figure below, $\overline{P'Q'}$ is the image of $\overline{PQ}$.
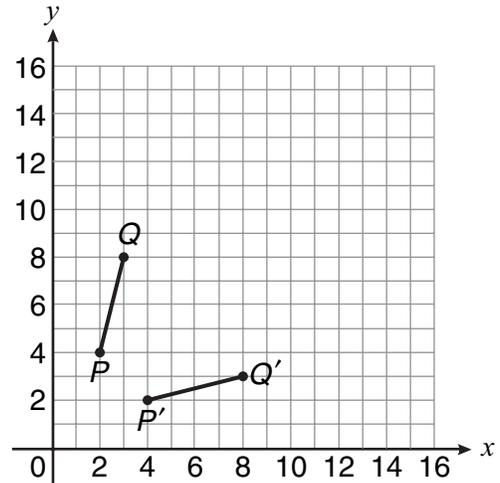
    Which transformation maps $\overline{PQ}$ onto $\overline{P'Q'}$?

    A. a reflection over the line $y = x$

    B. a reflection over the line $y = -x$

    C. a rotation of 60° clockwise about the origin

    D. a rotation of 60° counterclockwise about the origin

54. A cube of cheese that is 4 inches on each side weighs 2 pounds. If another cube of this cheese is 12 inches on each side, how much does it weigh?

    A. 6 pounds

    B. 16 pounds

    C. 24 pounds

    D. 54 pounds

Please go on to the next page.

55. The figure below is a right circular cone with vertex *V*. $\overline{UW}$ is a diameter of the base of the cone.
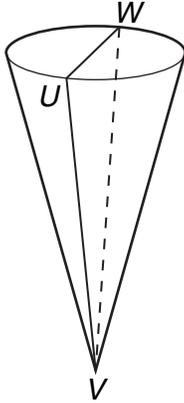
Which theorem can be used when proving that $\angle VUW \cong \angle VWU$?

A. Base angles of an isosceles triangle are congruent.

B. Base angles of an isosceles trapezoid are congruent.

C. Central angles of congruent arcs are congruent.

D. Intercepted angles of congruent arcs are congruent.

56. Melinda wrote down all of her scores at a gymnastic meet and calculated the median, mean, mode, and range. She then realized that her best score and her worst score will be thrown out during the judging process. Which statistic **must** remain the same?

A. median

B. mean

C. mode

D. range

57. A 32-gallon tank leaks at the rate of 2 gallons per hour. If the tank starts out full, which graph correctly illustrates the amount of liquid in the tank over time?

A.

B.

C.

D.

Please go on to the next page.
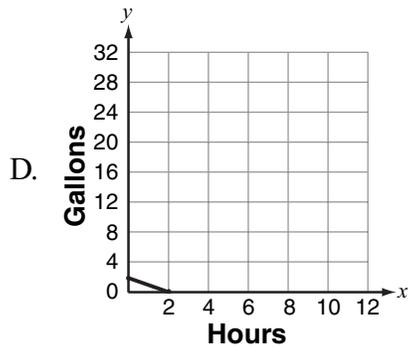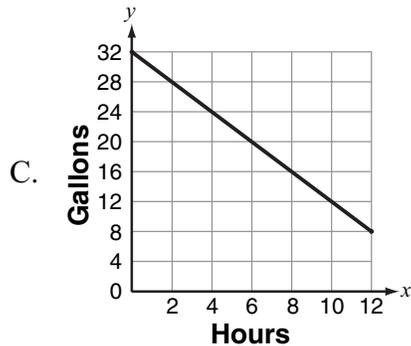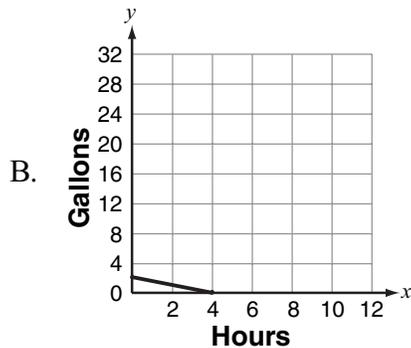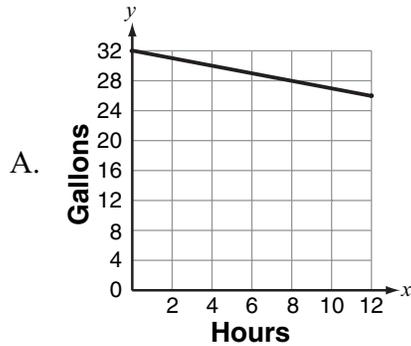
Use the graph below to answer question 58.
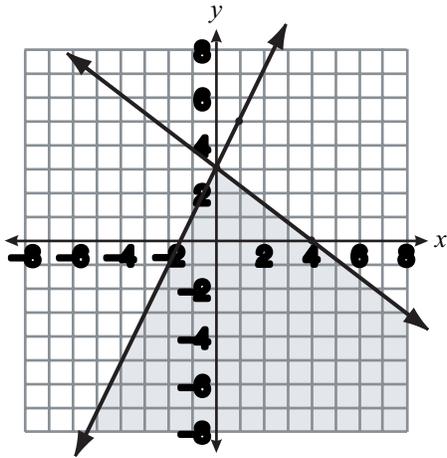
58. Which system of inequalities is illustrated by this graph?

A. $\begin{cases} 3x + 4y \leq 12 \\ -2x + y \geq 3 \end{cases}$

B. $\begin{cases} 3x + 4y \leq 12 \\ -2x + y \leq 3 \end{cases}$

C. $\begin{cases} 3x + 4y \geq 12 \\ -2x + y \leq 3 \end{cases}$

D. $\begin{cases} 3x + 4y \geq 12 \\ -2x + y \geq 3 \end{cases}$

Use the statement below to answer question 59.

All equilateral quadrilaterals are also equiangular.

59. Which figure is a counterexample that could be used to prove this statement is false?

A. a parallelogram that is not a rhombus

B. a rhombus that is not a square

C. a rectangle that is not a square

D. a square

60. In a best-of-five series of games between two players, the series ends as soon as one player has won three games. After Wendy wins the first game of a best-of-five series, how many different combinations of wins and losses are possible so that Wendy wins the series?

The combination "win, lose, win" is different from "lose, win, win."
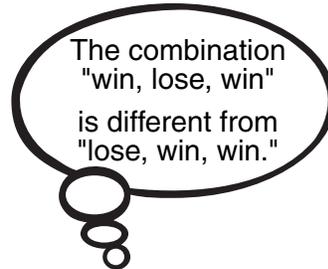
A. 3

B. 4

C. 6

D. 10

61. For a report on wheat production around the world, Jodi gathered the information below from several different sources.

Saudi Arabia:	3.8 million tons
Bangladesh:	400 thousand tons
Turkey:	16 million tons
Syria:	4.1×10^7 tons

Which list correctly orders the nations from the country producing the least wheat to that producing the most wheat?

A. Saudi Arabia, Turkey, Bangladesh, Syria

B. Bangladesh, Syria, Saudi Arabia, Turkey

C. Turkey, Saudi Arabia, Bangladesh, Syria

D. Bangladesh, Saudi Arabia, Turkey, Syria

62. A triangle is located on a coordinate plane with vertices R (4, 4), S (−3, −2) and T (4, −2). Which side of $\triangle RST$ is the longest?

    A. $\overline{RS}$

    B. $\overline{RT}$

    C. $\overline{ST}$

    D. $\triangle RST$ is equilateral.

63. The figure below shows the intersection of a plane and a rectangular prism. The plane intersects the prism so that one edge of the prism lies in the plane.
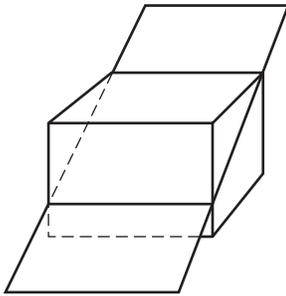
    Which quadrilateral is formed by the intersection of the plane and the prism?

    A. an isosceles trapezoid, but not necessarily a parallelogram

    B. a rectangle, but not necessarily a square

    C. a parallelogram, but not necessarily a rectangle

    D. a square

64. Marcel is going to cover his bathroom floor with 4-inch square tiles. The floor is 6 feet 8 inches by 8 feet 4 inches. How many 4-inch square tiles will Marcel need?

    A.   45 tiles

    B.   225 tiles

    C.   500 tiles

    D. 2000 tiles

65. Which table illustrates a linear relationship between x and y?

    A.

x	0	1	2
y	1	0	0

    B.

x	0	1	2
y	0	1	0

    C.

x	0	1	2
y	0	0	1

    D.

x	0	1	2
y	0	0	0

66. Which number is evenly divisible by 180?

    A. 1,450,180

    B. 2,011,320

    C. 3,310,110

    D. 4,030,120

67. The portion of a pond shown in the map below needs to be treated with copper sulfate.
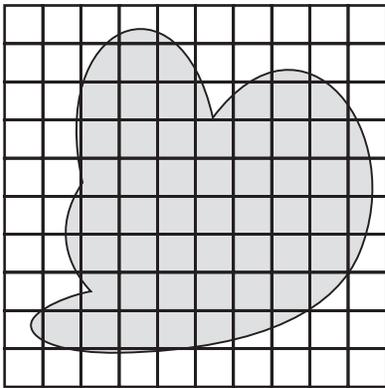
☐ =1 acre

The estimated cost of the copper sulfate required per acre is $6.25. Which is the best estimate of the cost of the copper sulfate to treat this pond?

    A. $150

    B. $250

    C. $350

    D. $450

Use the system of equations below to answer question 68.

$$\begin{cases} 4x - 3y = 11 \\ -2x + y = -5 \end{cases}$$

68. Which ordered pair (x, y) is the solution to this system?

    A. $(3, 1)$

    B. $(2, -1)$

    C. $\left(-\frac{1}{2}, -6\right)$

    D. $(-3, -1)$

69. Ms. Harris's mathematics class is made up of 28 students. The box-and-whisker plot below shows the distribution of the students' average grades at the end of the semester.

64 73 81 90 96
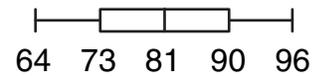
Which statistics can be determined from this plot?

    A. median and range

    B. mean and range

    C. median and mode

    D. mean and mode

Please go on to the next page.

Questions 70 through 72 are short-answer questions. For each short-answer question, copy the problem into the Work Space in your Student Response Booklet and find the answer. Show all of your work. Write your answer in the boxes in the top row of the Answer Grid provided in your Student Response Booklet. For each number you write, fill in the matching bubble below it.

ID:178428

70. Solve for x:

$$-3x + 8 = 2(x - 1)$$

ID:175967

71. Compute:

3.2% of 7200

ID:178430

72. What is the value of $-2(x - 5)^2$ when $x = -1$?

ID:176022 TRH9-block_sequ

73. The picture below shows the first four terms in a sequence.

Term 1 ▪

Term 2 ▪ ▪ ▪ ▪
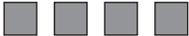
Term 3 ▪ ▪ ▪ ▪ ▪ ▪ ▪

Term 4 ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪

a. How many blocks are in Term 12 of the sequence?

b. Let a represent the number of blocks in Term n. Write an expression that shows how to find the number of blocks in the term **after** Term n.

c. Let b represent the number of blocks in a term and let n represent the term number. Write an equation to show the relationship between b and n.