Algebra II 11.2-11.5 Test Review 42

1. Every human has blood type A, B, O, or AB. 10% have type B and 46% have type O. What is P(someone has blood type A or AB)? $10\% + 46\% = \boxed{56\%}$

2. A movie company surveyed 1000 people. 229 people said they went to see the new movie on on Friday, 256 said they went on Saturday. If 24 people saw the movie both nights, what is P(a person chosen at random saw the movie on Friday or Saturday)?
$\frac{229}{1000} + \frac{256}{1000} - \frac{24}{1000} = \boxed{\frac{461}{1000}} = 46.1\%$

3. A debate team surveyed its members' ages, resulting in the data set: 15, 16, 15, 17, 15, 16, 14, 17, 15, 15, 16, 16, 17, 16, 14. What is the experimental probability that a member chosen at random is younger than 16? $\boxed{\frac{7}{15}}$

4. What is the median of the data set {1, 4, 4, 4, 5, 8, 8, 10, 11, 11}? Show your work.
$\frac{\Sigma x}{n} = \frac{64}{10} = \boxed{6.4}$ MEAN (four)

5. What is the approximate variance and standard deviation of the data set {1, 1, 6, 8, 10, 12}? Show your work. $VAR \approx \boxed{21.07}$ $\sqrt{VAR} = STD \approx \boxed{4.5898}$

6. Jackie surveys her friends to see how many books they've read in the last two months. The results are shown in the following table:

Number of Books Read	1	2	3	4	5
Number of Friends	2	4	2	1	1
P(x)	.2	.4	.2	.1	.1

$1(0.2) + 2(0.4) + 3(0.4) + 4(0.1) + 5(0.1)$
$\boxed{2.5}$
What is the expected number of books read by Jackie's friends?

7. A coin is flipped 3 times. What is the probability that the result is tails all three times?
$\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \boxed{\frac{1}{8}}$

8. A coin and a number cube are tossed at the same time. What is the probability that the coin shows tails and the number cube shows a 2, 3, or 4?
$\frac{1}{2} \cdot \frac{3}{6} = \frac{3}{12} = \boxed{\frac{1}{4}}$

9. Two number cubes are rolled at the same time. What is the probability that the sum of the two cubes is 2 or 12?
1+1 6+6
$\frac{1}{36} + \frac{1}{36} = \boxed{\frac{2}{36}} = \boxed{\frac{1}{18}}$

key

10. A company is testing a new method of manufacturing a part for their machines. They tested parts using the old and new methods.

	New	Old
Passed	5	23
Failed	2	30

What is the probability that a part chosen at random from this group is new and passed the test?

$\frac{7}{60} \cdot \frac{5}{7} = \frac{1}{12} \approx 0.083 \approx 8.3\%$

11. The ages in years of a study group are 12, 13, 13, 13, 14, and 15. Another 12-year old joins their group. In what ways does this new member's age affect the mean and standard deviation?

Before $\bar{x} = 13\frac{1}{3}$ $\quad \sigma \approx 0.943$ After $\bar{x} \approx 13.143$ $\quad \sigma \approx 0.989743$ mean goes down, std goes up

12. A movie company shows its movies to a group of viewers before it's released. The results of one showing are in the table:

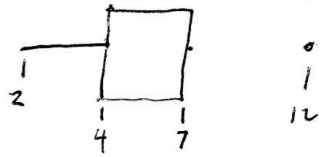
	18-34	35-44	45-54
Liked	12	5	9
Didn't Like	3	13	8

$\frac{26}{50} \cdot \frac{12}{15} = \frac{52}{125} \approx 0.416 \approx 41.6\%$

What is the probability that a person is in the 18-34 age group given that he or she liked the movie?

13. A young boy keeps track of how many snails he finds at different places in his yard:

{12, 2, 3, 4, 4, 4, 4, 6, 7, 7}. Make a box-and-whisker plot of the number of snails found. Identify the interquartile range. IQR: $7 - 4 = 3$



14. What is the mean of the data set: {0, 0, 2, 4, 4, 5}? 2.5

15. A card is drawn from a bag containing these nine cards: 3, 5, 6, 8, 9, A, C, E, J. Find
    a. P(selecting a C or an even number)= $\frac{1}{9} + \frac{2}{9} = \frac{3}{9} = \frac{1}{3}$
    b. P(selecting an odd number or a multiple of 3)= $\frac{3}{9} + \frac{3}{9} - \frac{3}{9} = \frac{3}{9} = \frac{1}{3}$

16. The probability distribution for the number of absent students on any given day for a certain class is given. Find the expected number of absent students. $0(0.35) + 1(0.25) + 2(0.20) + 4(0.05) =$ 1.3

Number of Students n	0	1	2	3	4
Probability of n absent students	.35	.25	.20	.15	.05

17. Each letter of the alphabet is written on a card. The cards are placed into a bag. Determine whether the events are independent or dependent, and then find the indicated probability.
    a. The letter D is drawn, replaced in the bag, and then the letter J is drawn. INDEPENDENT
    b. Three vowels are drawn without replacement. DEPENDENT

a) $\frac{1}{26} \cdot \frac{1}{26} = \frac{1}{676}$

b) $\frac{5}{26} \cdot \frac{4}{25} \cdot \frac{3}{24} = \frac{1}{260}$

a, E, i, O, u

KEY

18. The number of known satellites of the planets in the solar system is given in the table.

Planet	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto
Moons	0	0	1	2	63	33	27	13	1

$Q_1 = 0.5$

$Q_3 = 30$

Determine if 63 is an outlier. Show your work.

$IQR = Q_3 - Q_1 = 29.5$ | $OUTLIER \geq Q_3 + 1.5\,IQR = 30 + (29.5)1.5 = 74.25$ No

19. Explain why the events "choosing a club" and "choosing a heart " are mutually exclusive.

No CAND is Both club AND Heart