

15. Given  $f(x) = \sqrt{x+9}$  and  $g(x) = \frac{6}{x-9}$ . Which of the following is a true statement?

- a.  $f(0) = -3$                       b.  $g(9) = 0$                       c. 9 is not in the domain of  $g(x)$                       d.  $-9$  is not in the domain of  $f(x)$

16. Solve the equation or formula for the indicated variable.  $S = 5r^2\sqrt{t}$ . Solve for  $t$ .

- a.  $t = \frac{S}{5r}$                       b.  $t = \frac{S^2}{25r^4}$                       c.  $t = \frac{\sqrt{S}}{\sqrt{5r^2}}$                       d.  $t = \frac{25r^4}{S^2}$

17. Which of the following is **not** equal to  $\sqrt[3]{x^{15}}$ ?

- a.  $x^{\frac{3}{15}}$                       b.  $\sqrt[2]{x^{10}}$                       c.  $x^5$                       d.  $x^{\frac{15}{3}}$

18. Which value is equivalent to  $5^{\frac{3}{2}}$ ?

- a.  $\frac{15}{2}$                       b.  $\sqrt{15}$                       c.  $5\sqrt{5}$                       d.  $\frac{125}{2}$

19. Which exponential function models a population of 100 chickens decreasing at an annual rate of 5%?

- a.  $y = 100(0.95)^x$                       b.  $y = 100(0.05)^x$                       c.  $y = 100(0.05)$                       d.  $y = 100(1.05)^x$

20. Simplify  $\frac{4}{x^2-9} - \frac{2}{x-3} = 1$

- a.  $-1 \pm 2\sqrt{2}$                       b.  $1 \pm 2\sqrt{2}$                       c.  $-2 \pm 4\sqrt{2}$                       d.  $2 \pm 4\sqrt{2}$

21. If  $f(x) = -x^2 - x + 1$ , what is  $f(-2)$ ?

- a.  $-5$                       b. 9                      c.  $-1$                       d. 1

22. Give the domain and range of the function:

$x$	-3	-2	-1	0
$y$	5	4	0	4

- a. Domain:  $\{0, 4, 5\}$   
Range:  $\{-3, -2, -1, 0\}$
- b. Domain:  $\{-3, -2, -1, 0\}$   
Range:  $\{0, 4, 5\}$
- c. Domain:  $\{-3, 0\}$   
Range:  $\{0, 5\}$
- d. Domain:  $\{-3, -2, 0\}$   
Range:  $\{0, 4, 5\}$

23. Evaluate  $\log_3 81 = x$ .

a. 2

b. 4

c. 8

d. 27

24. Write the expression below using rational exponents.  $\sqrt[3]{x^4 y^6}$

a.  $x^{\frac{3}{4}} y^{\frac{1}{2}}$

b.  $x^{\frac{4}{3}} y^2$

c.  $x^{\frac{3}{4}} y^6$

d.  $x^{12} y^{18}$

25. Which of the following is equal to  $x^{-\frac{2}{5}}$ ?

a.  $\frac{1}{\sqrt[5]{x^2}}$

b.  $-\sqrt{x^5}$

c.  $-x^3$

d.  $-\frac{1}{\sqrt[5]{x^2}}$

26.. Solve  $\frac{1}{3} + \frac{5}{x} = \frac{17}{6x}$

a.  $x = -\frac{13}{2}$

b.  $x = \frac{13}{2}$

c.  $x = 13$

d.  $x = 2$

STUDENTS WILL ALSO NEED TO KNOW THE FOLLOWING RECENT TOPICS:

STATISTICS: PROBABILITY, MEAN, MEDIAN, MODE, STANDARD DEVIATION

UNIT CIRCLE: CONVERTING DEGREES TO RADIANS, RADIANS TO DEGREES, SINE AND COSINE VALUES OF UNIT CIRCLE ANGLES.