Name: _____ Period: _____

Math 2 Review: Unit 6

Radical Functions

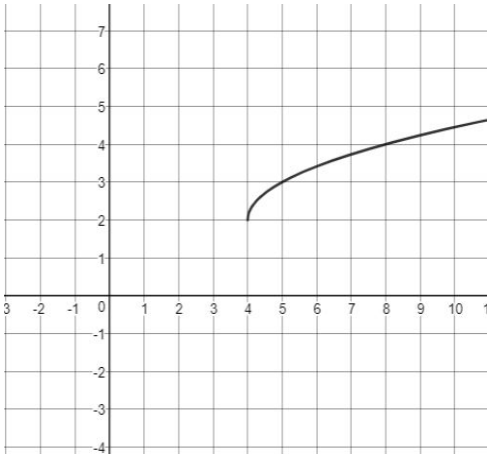
_____ 1. Which of the following equations matches this graph?

a. $f(x) = \frac{1}{x+4} - 2$

b. $f(x) = \sqrt{x+2} - 4$

c. $f(x) = \sqrt{x-4} + 2$

d. $f(x) = \frac{1}{x-4} + 2$



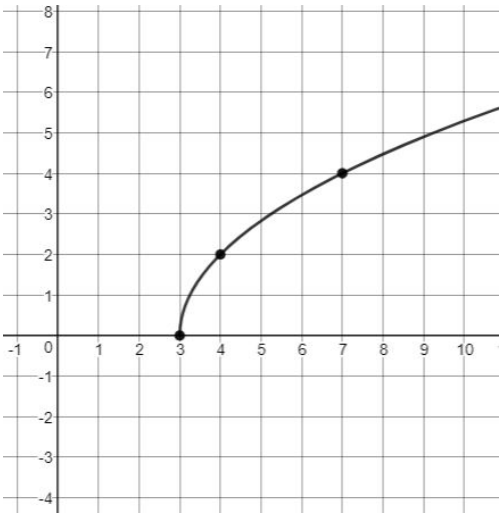
_____ 2. Which of the following equation matches this graph?

a. $f(x) = 2\sqrt{x-3}$

b. $f(x) = \frac{2}{x+3}$

c. $f(x) = \frac{2}{x-3}$

d. $f(x) = 2\sqrt{x+3}$



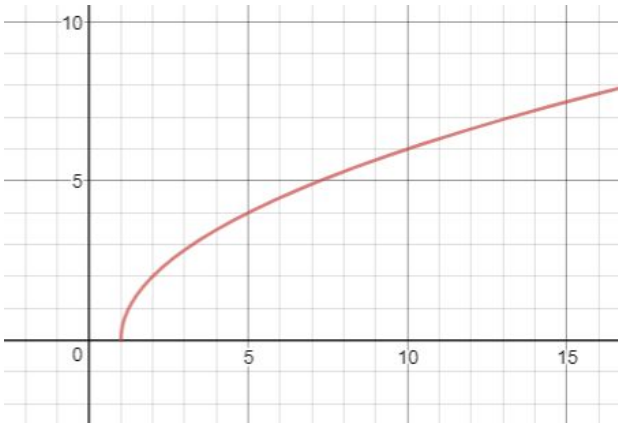
_____ 3. Which equation models the graph?

a. $f(x) = \sqrt{x-1}$

b. $f(x) = 2\sqrt{x} - 1$

c. $f(x) = 2\sqrt{x-1}$

d. $f(x) = \frac{2}{x-1}$



_____ 4. What is the domain of the function?

a. $(0, \infty)$

b. $(1, \infty)$

c. $[0, \infty)$

d. $[1, \infty)$

_____ 5. What is the range of the function?

a. $(0, \infty)$

b. $(1, \infty)$

c. $[0, \infty)$

d. $[1, \infty)$

6. Write the equation for the following:

   a. A square root function is translated 3 units to the right and down 5.

   b. A square root function is vertically stretched by a factor of 2 and reflected over the x-axis.

   c. A square root function is translated 2 units to the left and one unit down.

   d. A square root function vertically compressed by a factor of 3, translated 1 unit to the right and 6 units down, and reflected over the x-axis

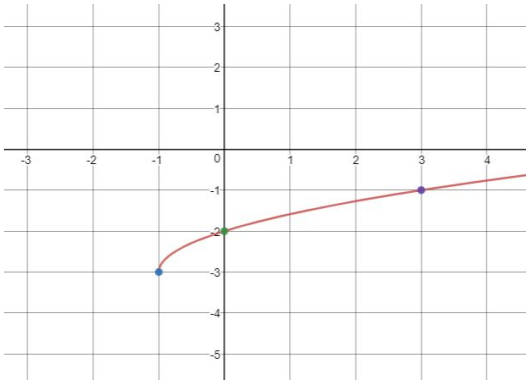
7. Transformations: _____

_____

_____

Equation:_____

Domain: _____ Range: _____



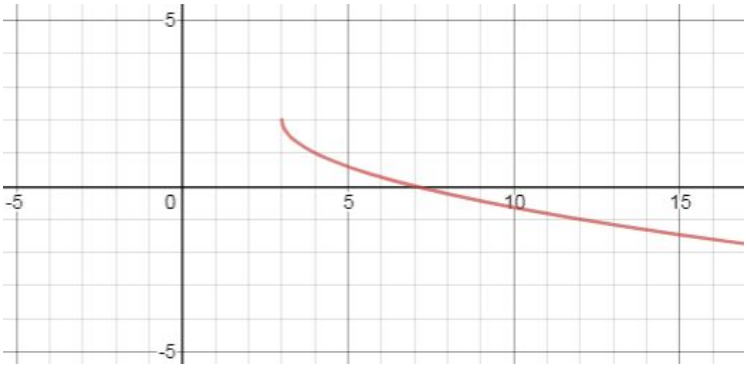
8. Transformations: _____

_____

_____

Equation:_____

Domain: _____ Range: _____



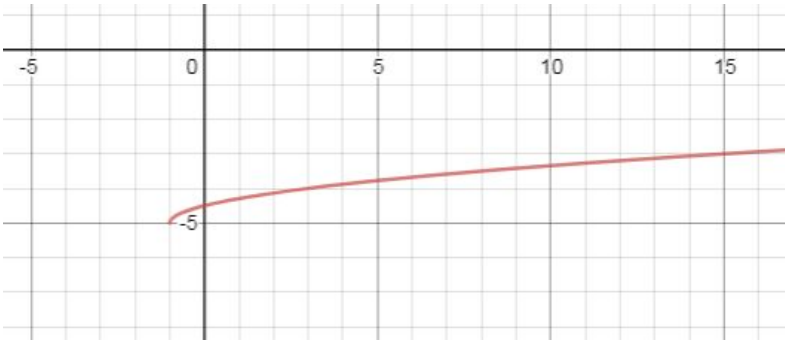
9. Transformations: _____

_____

_____

Equation:_____

Domain: _____ Range: _____



10. Solve the following radical equations.

a. $\sqrt{2x-1}=3$

b. $\sqrt{x}+3=12$

c. $\sqrt{x+2}=6$

d. $3\sqrt{x}-8=7$

e. $2\sqrt{3x+7}-1=7$

f. $-6=\sqrt{x-25}-8$

g. $5=\sqrt{x+6}+3$

h. $\sqrt{4x+1}=\sqrt{x+10}$

i. $\sqrt{3x-1}=\sqrt{2x+4}$

j. $5\sqrt{x+7}=25$

k. $2\sqrt{x+8}+6=2$

l. $2\sqrt{x+5}-1=3$

INDEPENDENT PRACTICE

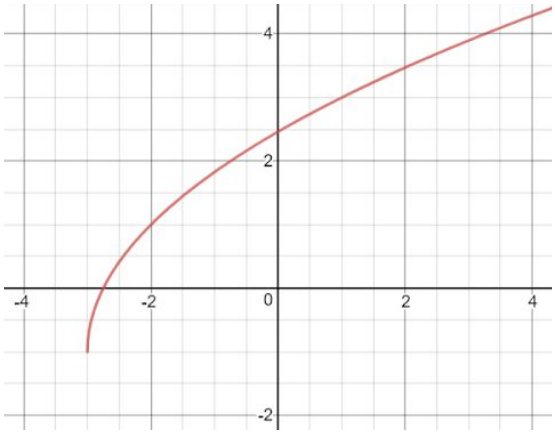
11. Which equation models the graph ?

a. $f(x) = \frac{1}{2}\sqrt{x-3}+1$

b. $f(x) = \sqrt{x+3}-1$

c. $f(x) = 2\sqrt{x+3}-1$

d. $f(x) = \frac{2}{x+3}-1$



12. What is the domain of the function?

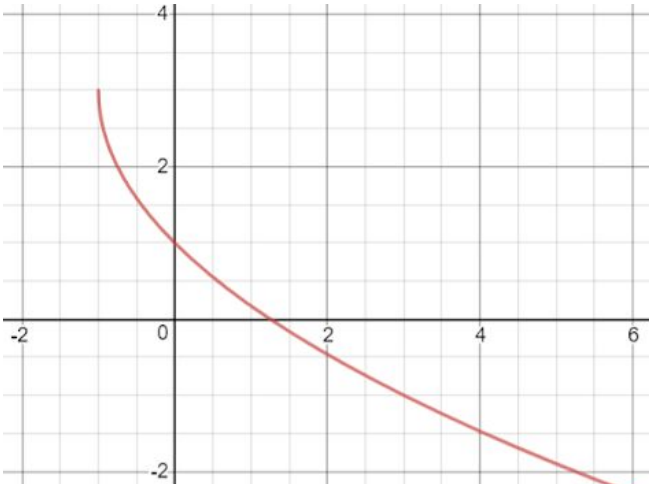
a. [0, ∞) b. [-3, ∞)

c. [-1, ∞) d. (0, ∞)

13. What is the range of the function?

a. [0, ∞) b. [-3, ∞)

c. [-1, ∞) d. (0, ∞)



14. Transformations: _____

_____

_____

Equation:_____

Domain: _____ Range: _____

15. Solve the following radical equations:

a. $3 + \sqrt{21-2x} = 4$

b. $\sqrt{8x+1} = 7$

Inverse Functions

Determine whether the following functions are direct, inverse or neither.
If direct or inverse, identify the constant of variation.

1. $y = \frac{2}{3}x$
2. $y = \frac{3}{x}$
3. $y = 4x + 2$
4. $y = 5x$

5. $y = 2x + 3$
6. $y = \frac{x}{3}$
7. $x = \frac{3}{y}$
8. $\frac{1}{2}xy = 2$

Solve for the given variable.
Remember, to do this we must first solve for k and rewrite our equation that relates to x and y

9. y varies inversely with x. y = 9 when x =12. Find x when y =3.

10. y varies inversely with x. y=0.3 when x =4. Find y when x =5.

Solve the following word problems. Remember, we want to solve using the same process.
Be sure to label your equation in context of the problem!

11. The number of revolutions made by a tired traveling over a fixed distance varies inversely to the radius of the tire. A 12-inch radius tire makes 100 revolutions to travel a certain distance. How many revolutions would a 16-inch radius tire require to travel the same distance?

12. The time of the trip varies inversely as the speed of the car. If a car being driven at 60 mph takes 4 hours to travel from Wake Forest to Charlotte, if the drive takes you 3 hours, how fast were you driving?

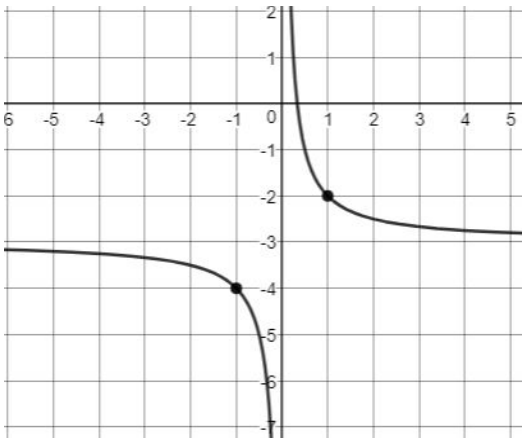
_____ 13. Which of the following equations matches this graph?

a. $f(x) = \frac{1}{x-3}$

b. $f(x) = \sqrt{x} - 3$

c. $f(x) = \sqrt{x - 3}$

d. $f(x) = \frac{1}{x} - 3$



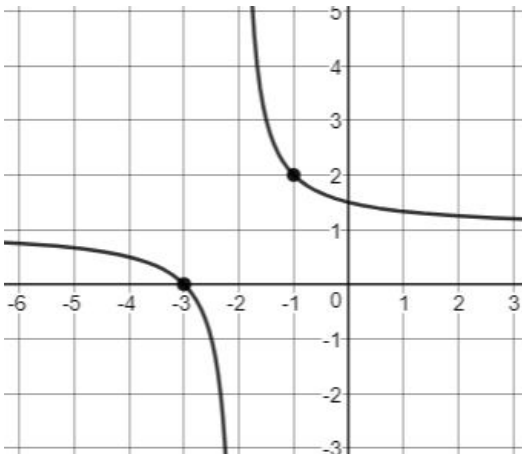
_____ 14. Which of the following equation matches this graph?

a. $f(x) = \sqrt{x+1} + 2$

b. $f(x) = \sqrt{x+2} + 1$

c. $f(x) = \frac{1}{x+2} + 1$

d. $f(x) = \frac{1}{x+1} + 2$



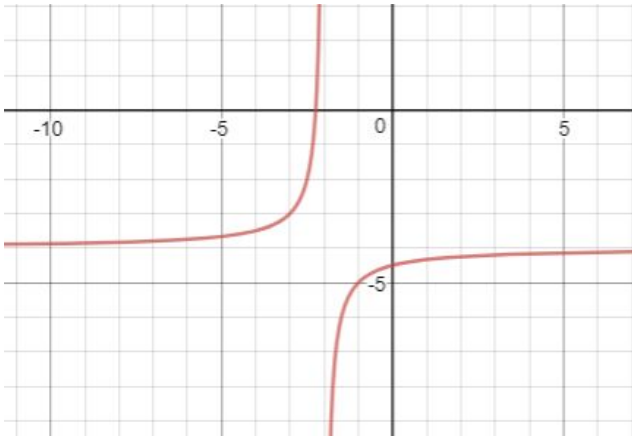
_____ 15. Which equation models the graph?

a. $f(x) = \frac{1}{x-2} + 4$

b. $f(x) = -\sqrt{x+2} - 4$

c. $f(x) = \frac{-1}{x-2} + 4$

d. $f(x) = \frac{-1}{x+2} - 4$



_____ 16. What is the domain of the function?

a. (-∞, ∞)

b. (-∞, -4) U (-4, ∞)

c. (-∞, -2) U (-2, ∞)

d. (-∞, -2] U [-2, ∞)

_____ 17. What is the range of the function?

a. (-∞, ∞)

b. (-∞, -4) U (-4, ∞)

c. (-∞, -2) U (-2, ∞)

d. (-∞, -2] U [-2, ∞)

18. Write the equation for the following:

a. An inverse variation function that is translated 2 units to the left and 1 unit down.

b. An inverse variation function is translated 3 units up and reflected.

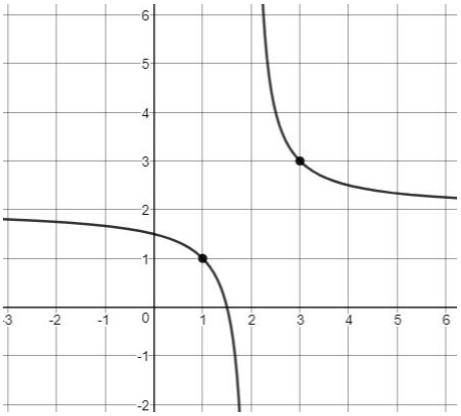
c. An inverse function is vertically compressed by 2 and translated 4 units right .

19. Transformations: _____

_____

Equation:_____

Domain: _____ Range: _____

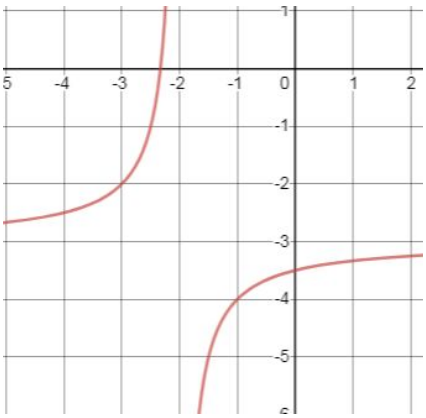


20. Transformations: _____

_____

Equation:_____

Domain: _____ Range: _____



21. Solve the following equations:

a.. $\frac{8}{3x+2} = \frac{4}{2x}$

b. $\frac{4}{x+2} = \frac{3}{x}$

c. $\frac{2}{x-3} = \frac{1}{2x-3}$

d. $\frac{12}{x} = \frac{24}{x+5}$

e. $\frac{x-5}{15} = \frac{4}{5}$

f. $\frac{3}{5-3x} = \frac{1}{2}$

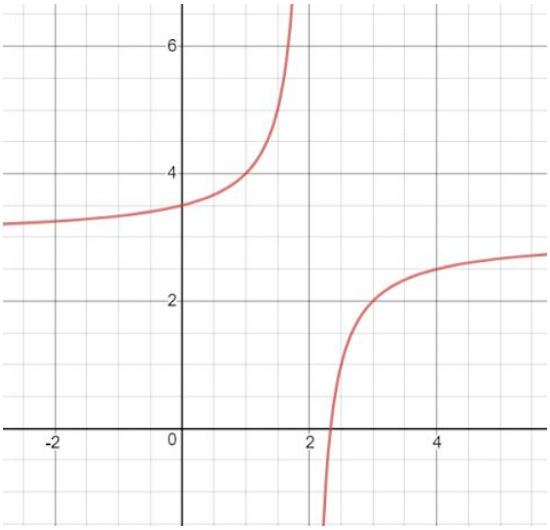
INDEPENDENT PRACTICE

22. y varies inversely with x. y=4 when x = 6. Find x when y =2.

23. The time it takes to fly from Los Angeles to New York varies inversely as the speed of the plane. If the trip takes 6 hours at 900 km/h, how long would it take at 800 km/h?

24. Which equation models the graph?

a. $f(x) = \frac{1}{x-2} + 3$
b. $f(x) = -\sqrt{x-2} + 3$
c. $f(x) = \frac{-1}{x-2} + 3$
d. $f(x) = \frac{-1}{x+2} - 3$

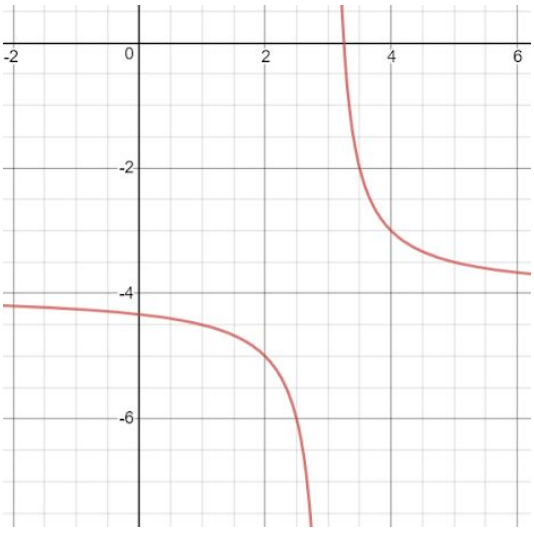


25. What is the domain of the function?

a. (-∞, ∞)
b. (-∞, 2) U (2, ∞)
c. (-∞, 3) U (3, ∞)
d. (-∞, 0) U (0, ∞)

26. What is the range of the function?

a. (-∞, ∞)
b. (-∞, 2) U (2, ∞)
c. (-∞, 3) U (3, ∞)
d. (-∞, 0) U (0, ∞)



27. Transformations: _____

_____

Equation:_____

Domain: _____ Range: _____

28. Solve the following equations:

a. $\frac{6}{x-9} = \frac{4}{6}$

b. $\frac{x-6}{7} = \frac{x}{4}$