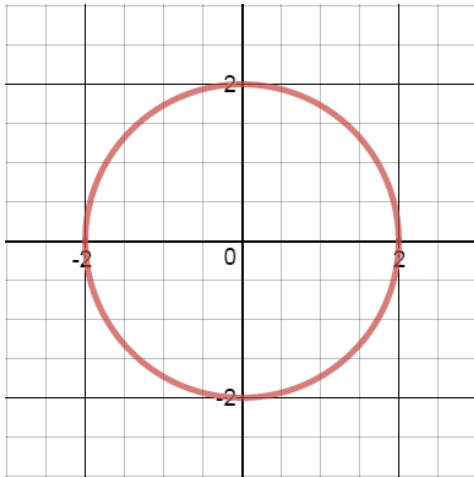1)   Find the x- and y-intercepts for each function.
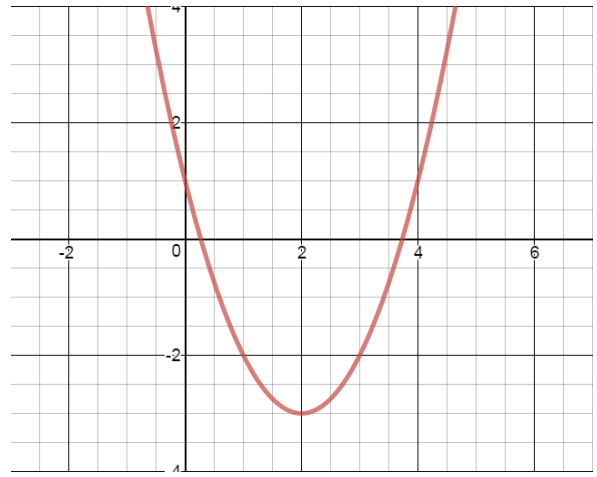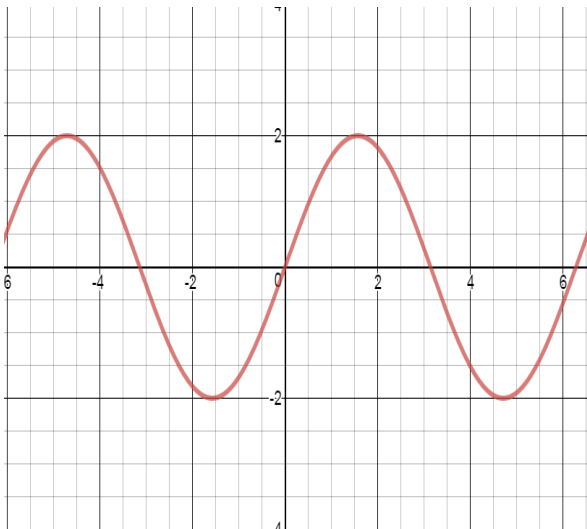   a) $y = -10x + 15$ b) $y = 8x^2 - 200$

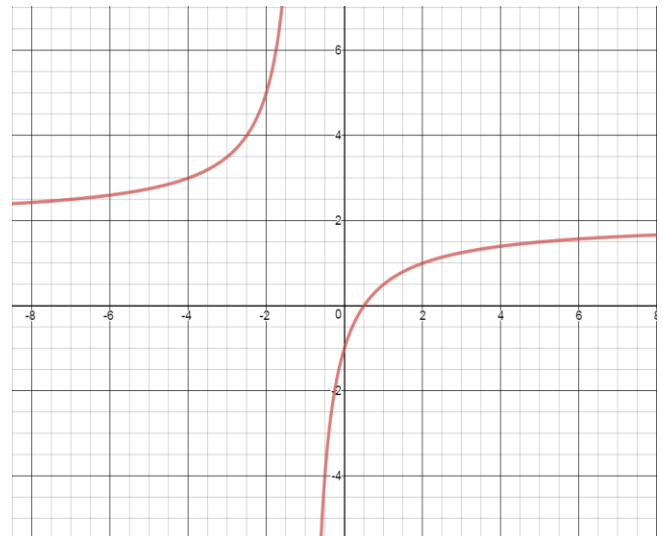2)   State the domain and range of each graph.
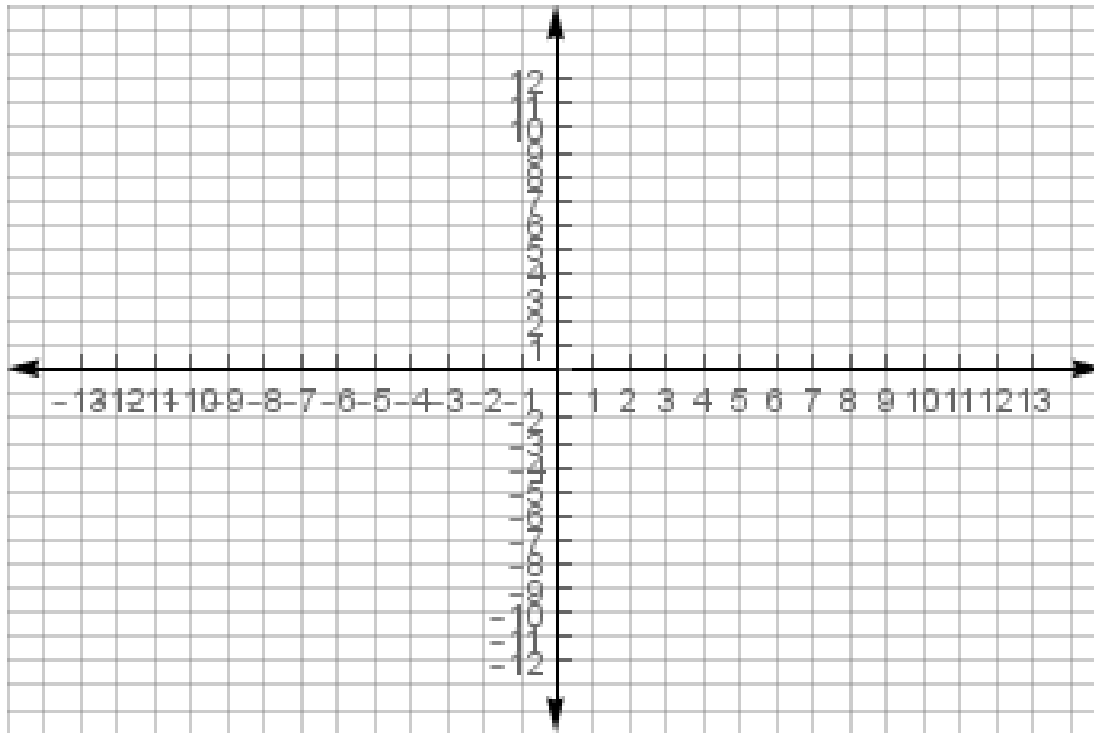

Domain:
Range:

Domain:
Range:

Domain:
Range:

Domain:
Range:

3) Graph the function.
State the x- and y-intercepts. $f(x) = 3\sqrt{x + 3} - 4$

4) Solve.

a) $4(8x - 1) + 3 = 7 - (x + 2)$

b) $2(x + 3)^2 + 5 = 103$

c) $13 = 4\sqrt{x - 5} - 1$

d) $3(4)^x + 1 = 193$

5) Given $f(x) = 3x^2 - 108$.

a) Find $f(0)$

b) Solve for x if $f(x) = 0$

6)   Given $g(x) = \sqrt{x-1} + 3$.

    a)   Find g(10)   b)   Solve for x if $g(x) = 17$.

7)   Write the equation of the line that passes through the points (-8, 1) and (-24, -1).

8)   Investigate the function $f(x) = \frac{1}{2} x^3 + 2x - 6$

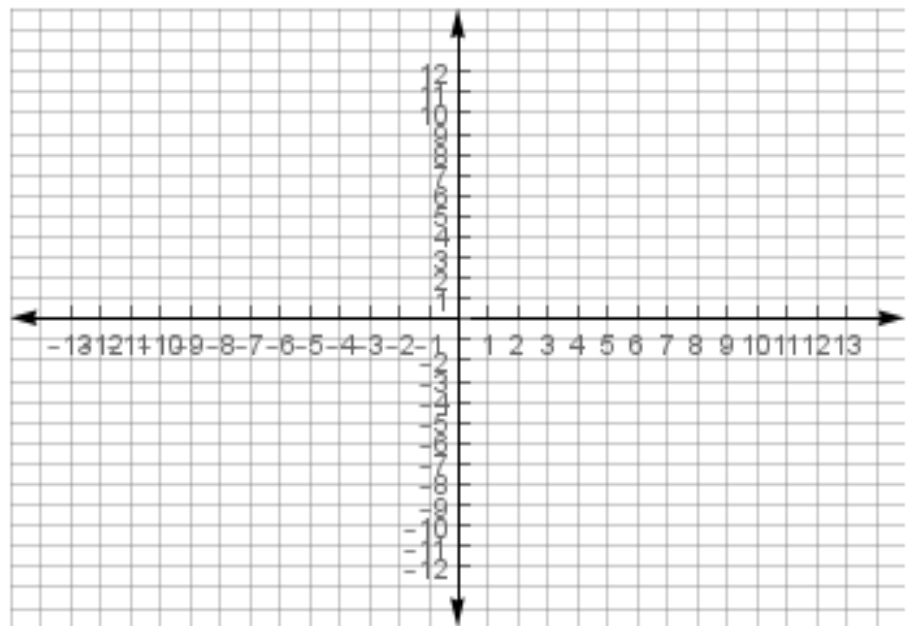   family: table:

    domain:

X				
Y				

    range: graph:

    x-intercept(s):

    y-intercepts:

    asymptotes:

9) Use the following sequence to answer a), b) and c): 6, 10, 14, …

    a) Is the sequence arithmetic or geometric? Explain how you know.

    b) Give the explicit rule for the sequence.

    c) Give the next three terms in the sequence.

10) Use the following sequence to answer a), b) and c): 400, 200, 100, …

    a) Is the sequence arithmetic or geometric? Explain how you know.

    b) Give the explicit rule for the sequence.

    c) Give the next three terms in the sequence.

11) Write an arithmetic **and** a geometric rule for the given two terms. Then find the next three terms using each rule.

    10, 15, …

Arithmetic:

Geometric:

12) There are 30 deer living in a park. Their population doubles every month.

    a) Write an equation to represent their population after 'x' months.

    b) Is this an example of linear or exponential growth? Why?

    c) How many deer will there be in 10 months?

13) Simplify.

a) $\dfrac{a^{-3}b^{4}c^{5}}{a^{6}b^{7}}$

b) $(3g^{5}h^{0})^{2}$

d) $\dfrac{(-4x^{-3}yw^{5})^{2}}{(6xy^{-4}w)^{2}}$

14) Suzi has $3000 in an investment. It is depreciating at a rate of 9% per year.

a) Write an equation for the situation. Define your variables.

b) Use your equation to find the value of the investment in 2017.

c) When will the investment be worth less than $1000?

15) Write an exponential equation of the curve that passes through (3, 17.28) and (7, 35.8318).

16) Find the vertex of the quadratic and write the equation in vertex form.
(use the method of finding 'h' from standard form and then finding 'k')

$y = (x + 3)(x - 15)$

18) Multiply and simplify.

    a) $(7x - 5)^2$
                                      b) $8(x + 1)(4x - 9)$

19) A ball is kicked from the ground and travels in a parabolic path. It travels a total horizontal distance of 52 feet and its maximum height reached is 12 feet. Sketch the situation. Write an exact equation to model the path of the ball.

20) State which family each equation belongs to and the locator point of each.

    $y = \dfrac{1}{x-3}$
                            $y = (x - 5)^2 - 7$
                          $y = (x + 1)^3$

    $y = |x - 8| - 8$
                          $y = \sqrt[3]{x} + 7$
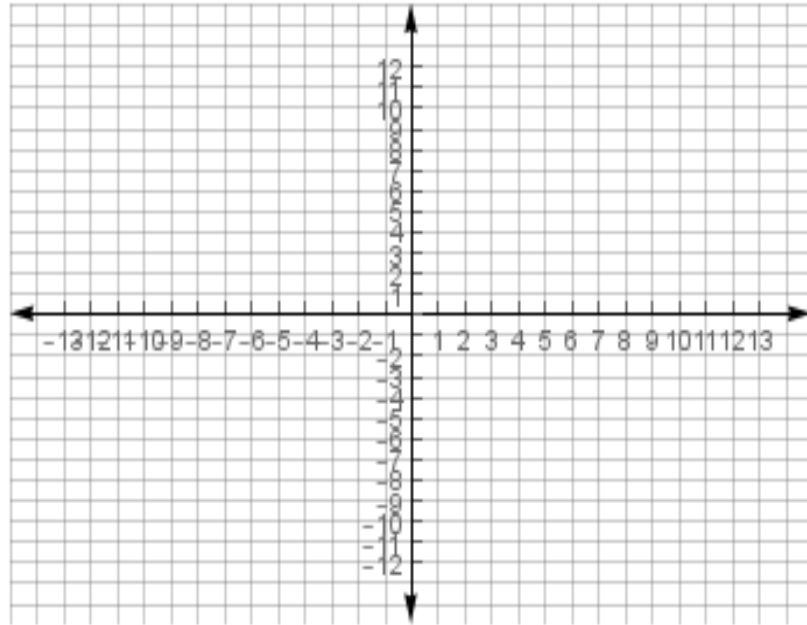 $y = \sqrt{x - 2}$

21) Rewrite into vertex form by completing the square.

$$y = x^2 - 12x + 51$$

22) Write an exact equation for a square root function that has a locator point of (-1, -4) and passes through the point (15, 8).

23) State the values of 'a', 'h' and 'k' for the given equation.
Then describe how each of these values affects this particular graph.
Graph the function.

$$y = -\tfrac{1}{4}\left|x - 3\right| - 2$$

26) Solve algebraically.

$4x - 5y = 39$
$11x + 8y = -45$

$y = -\tfrac{1}{2}x - 4$
$3x - 2y = 0$

27) Solve. $\quad 7\left|x - 1\right| - 8 = 20$ $\qquad\qquad \sqrt[4]{x - 2} - 5 = 1$

28) Thai Land sells 50 items one busy afternoon. They sell veggie bowls for $6.00 and desserts for $7.50 They make a total of $327. Find how many of each item they sold.
Define your variables. Write a system of equations. Solve it. State your solution.