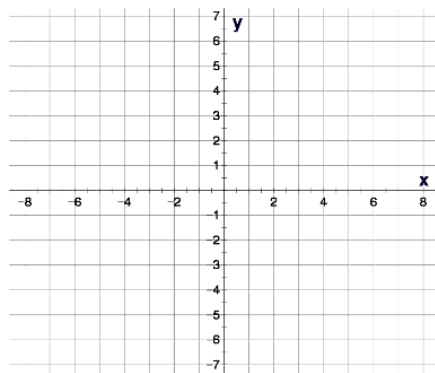
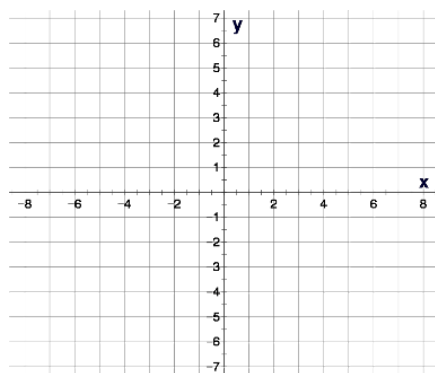


Graph transformations of a function using parameters

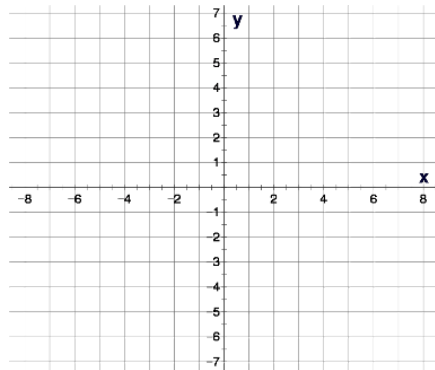
$$y = f(x)$$



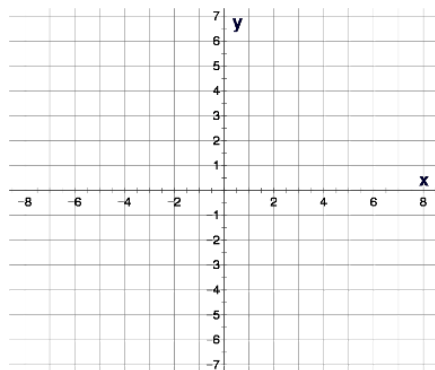
1.  $y = f(x - 4)$



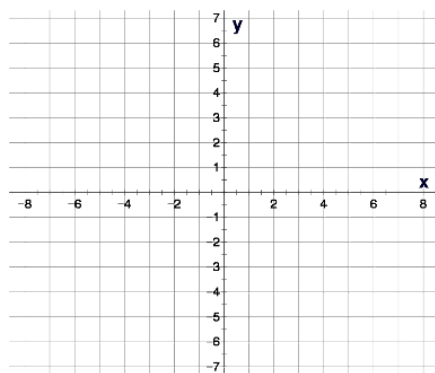
2.  $y = f(x + 2)$



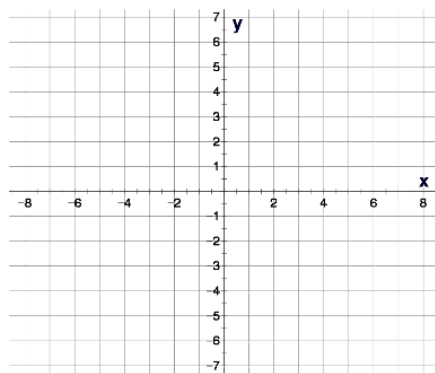
3.  $y = -f(x)$



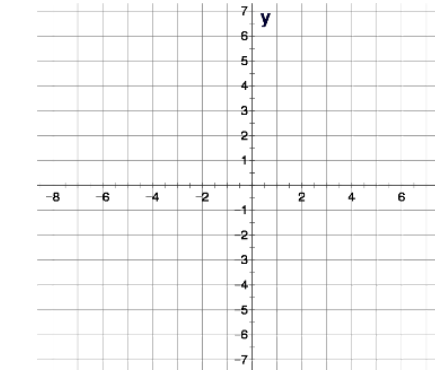
$$y = g(x)$$



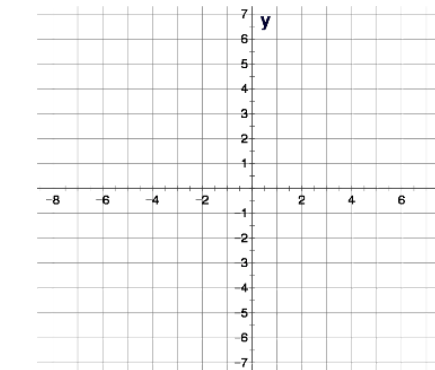
1.  $y = g(x - 3)$



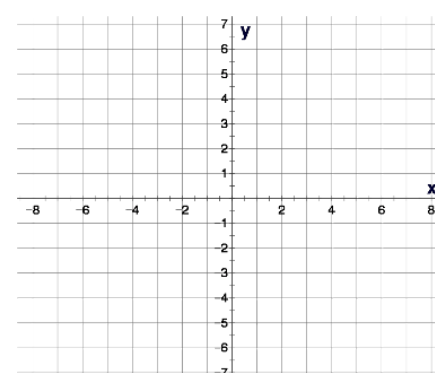
2.  $y = g(x + 4)$



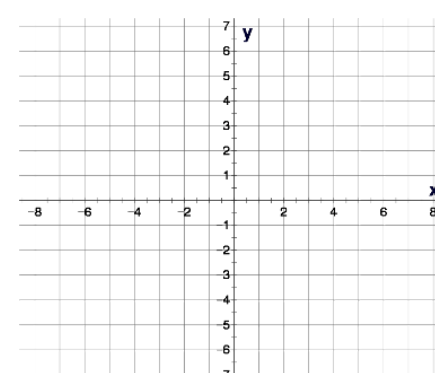
3.  $y = -g(x)$



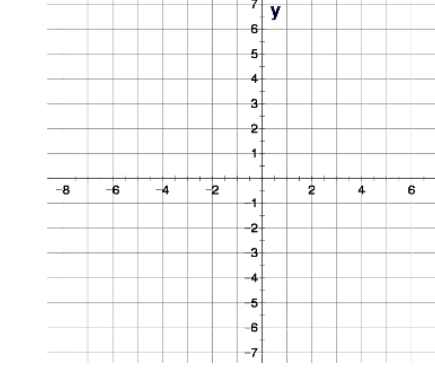
$$y = h(x)$$



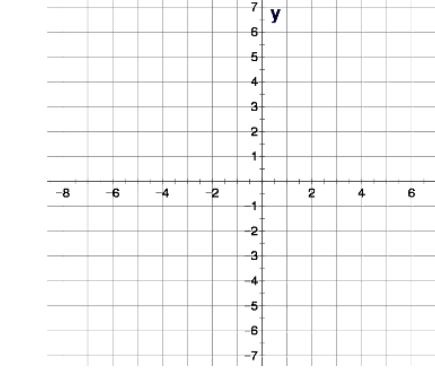
1.  $y = h(x - 2)$



2.  $y = h(x + 3)$

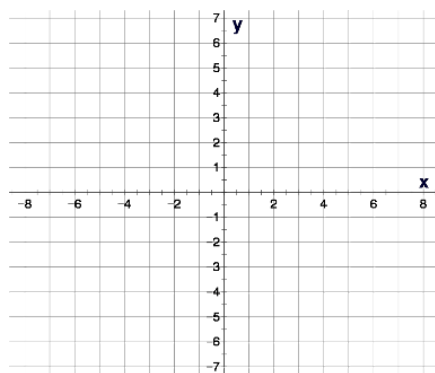


3.  $y = -h(x)$

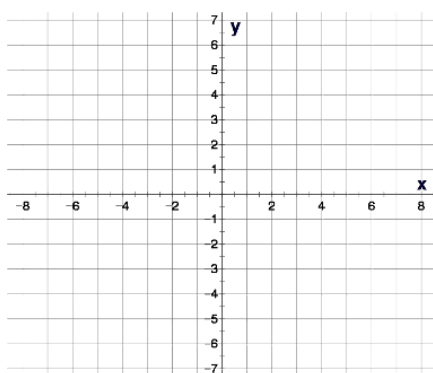


Graph transformations of a function using parameters

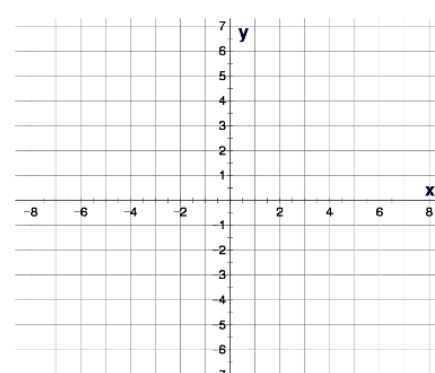
$$y = f(x)$$



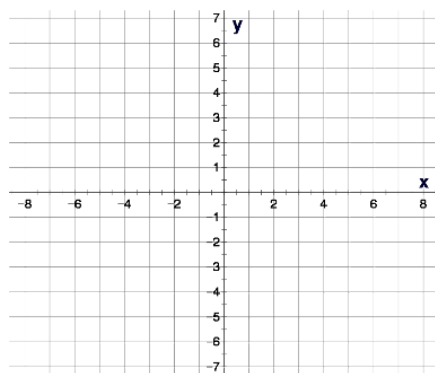
$$y = g(x)$$



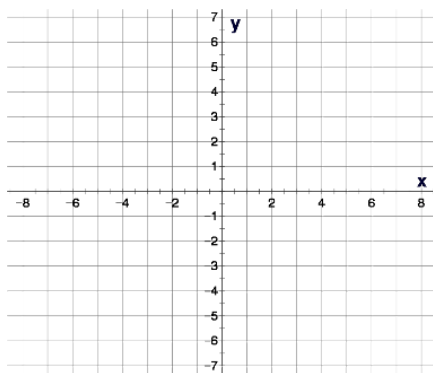
$$y = h(x)$$



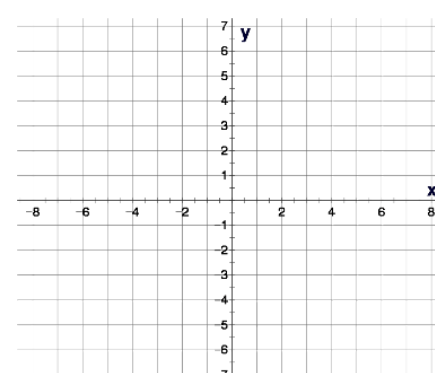
1.  $y = f(x) - 4$



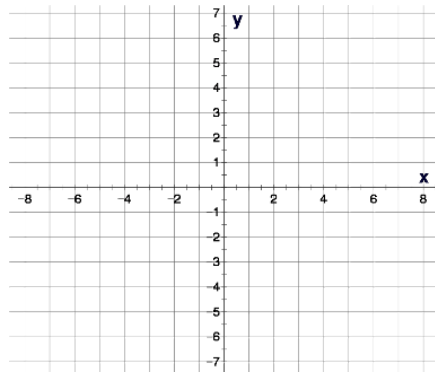
1.  $y = g(x) - 3$



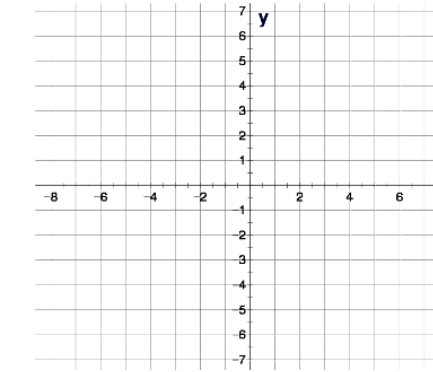
1.  $y = h(x) - 2$



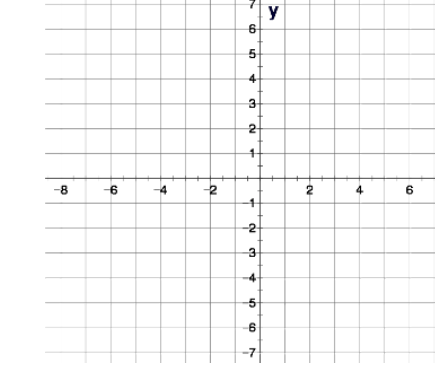
2.  $y = f(x) + 2$



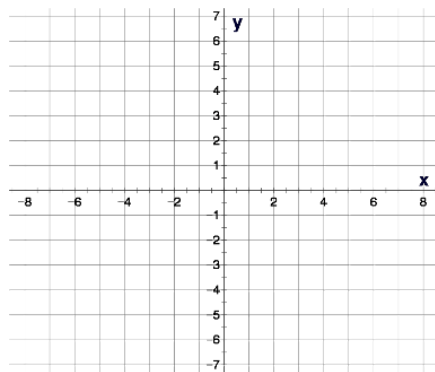
2.  $y = g(x) + 1$



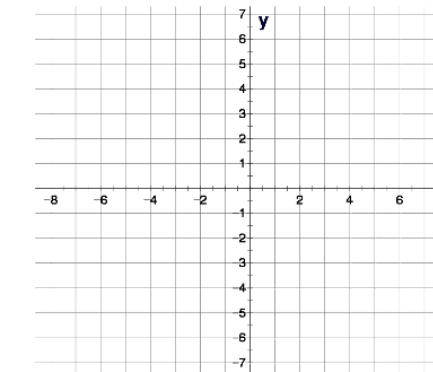
2.  $y = h(x) + 2$



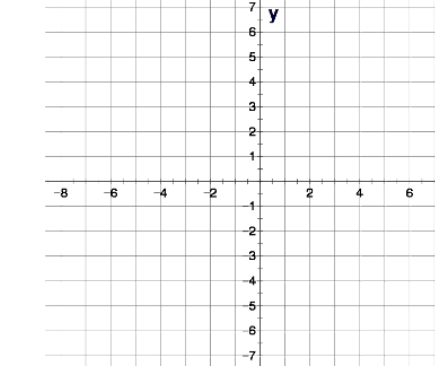
3.  $y = f(-x)$



3.  $y = g(-x)$

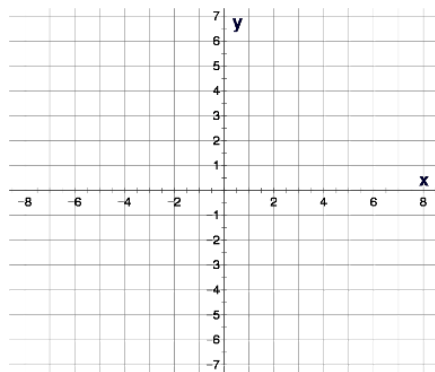


3.  $y = h(-x)$

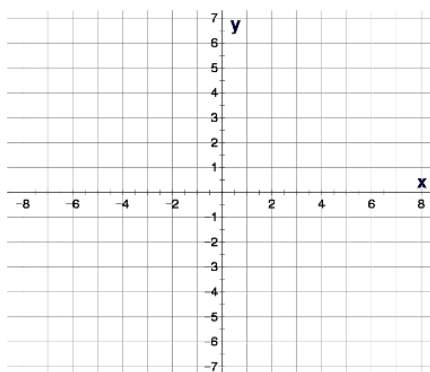


Graph by transformation, label points vertices and endpoints

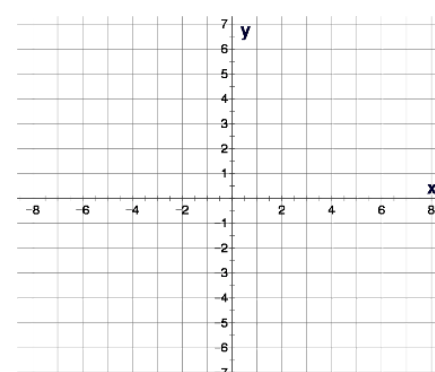
$$y = x^2$$



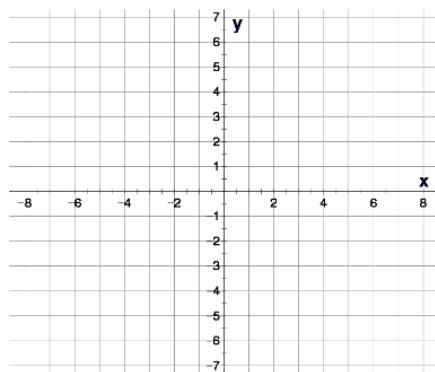
$$y = \sqrt{x}$$



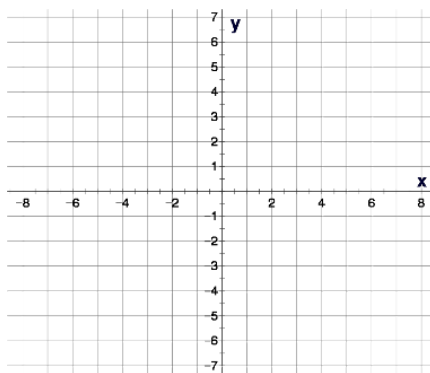
$$y = |x|$$



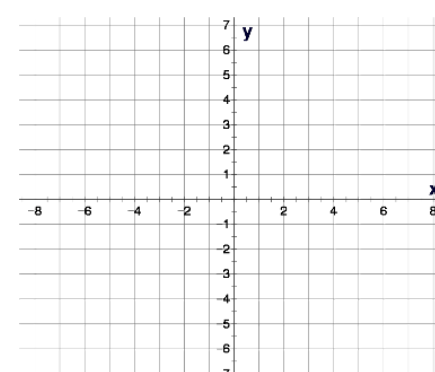
1.  $y = (x - 2)^2$



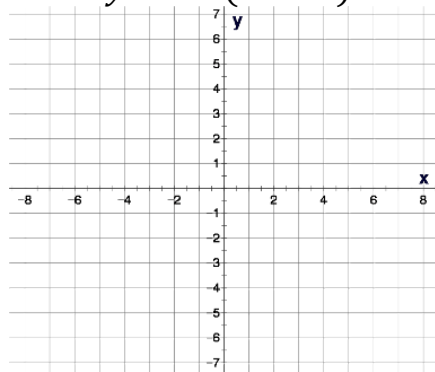
1.  $y = \sqrt{x + 4}$



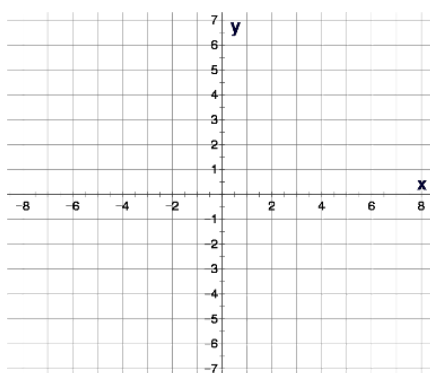
1.  $y = |x + 3|$



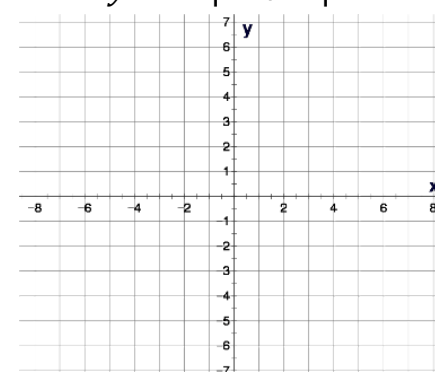
2.  $y = -(x - 2)^2$



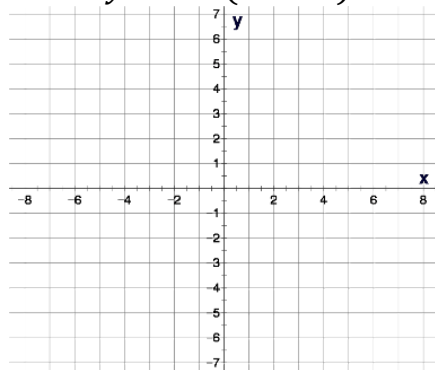
2.  $y = -\sqrt{x + 4}$



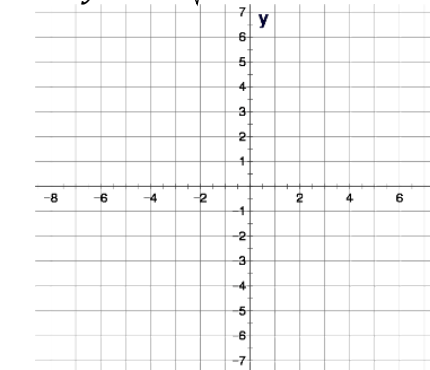
2.  $y = -|x + 3|$



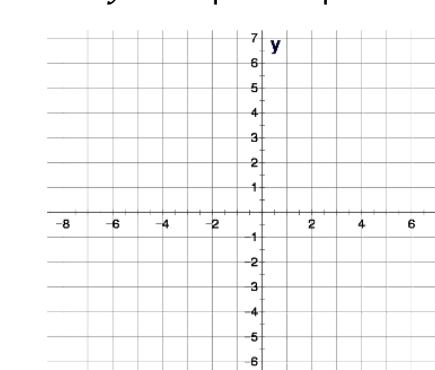
3.  $y = -(x - 2)^2 + 3$



3.  $y = -\sqrt{x + 4} + 5$

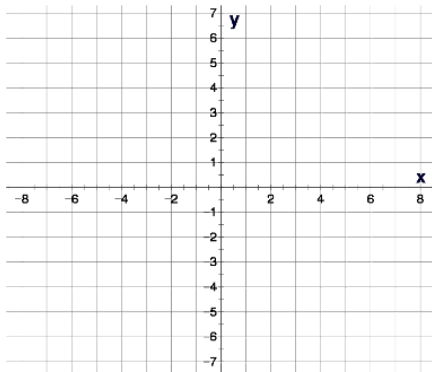


3.  $y = -|x + 3| - 4$

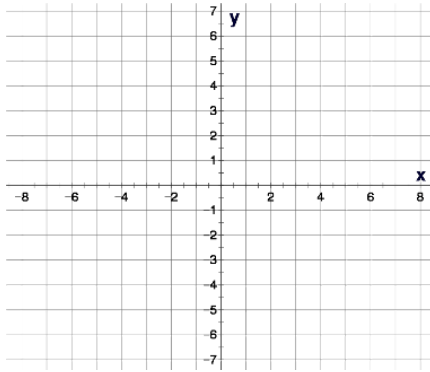


Graph by transformation, label points vertices and endpoints

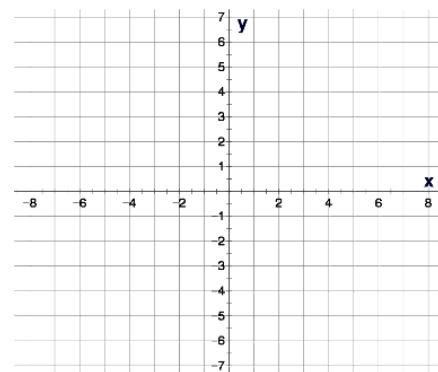
$$y = x^2$$



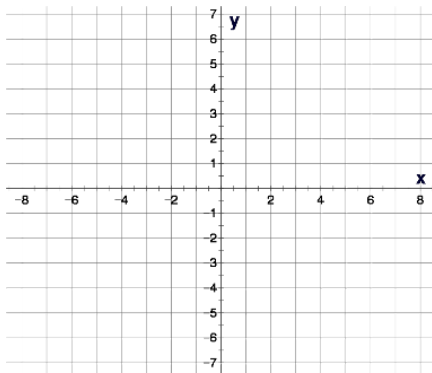
$$y = \sqrt{x}$$



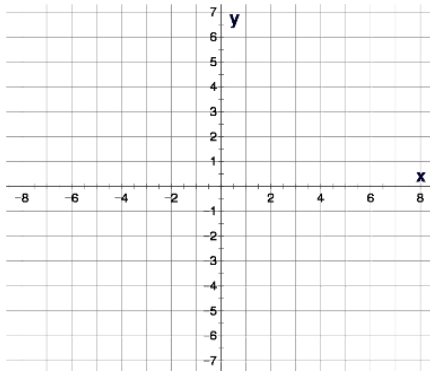
$$y = |x|$$



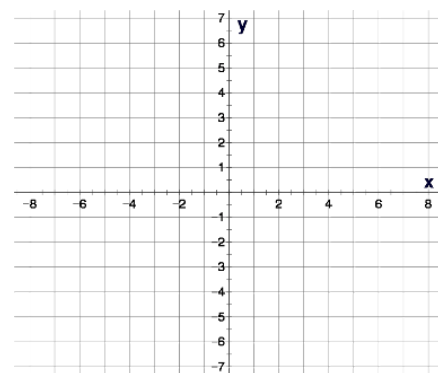
4.  $y = (x + 2)^2$



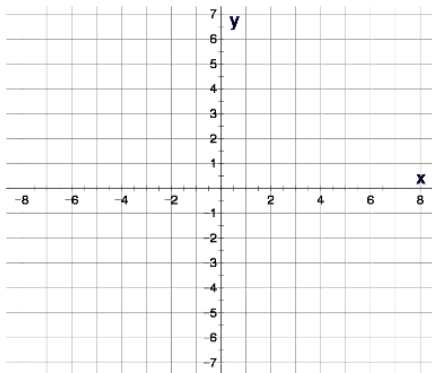
4.  $y = \sqrt{x + 4}$



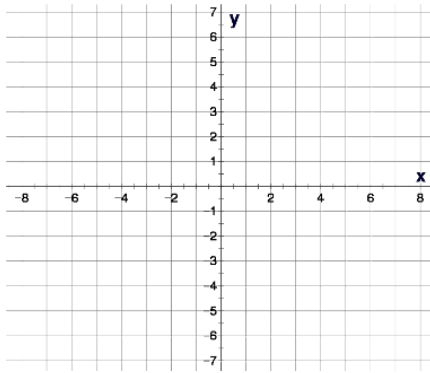
4.  $y = |x - 3|$



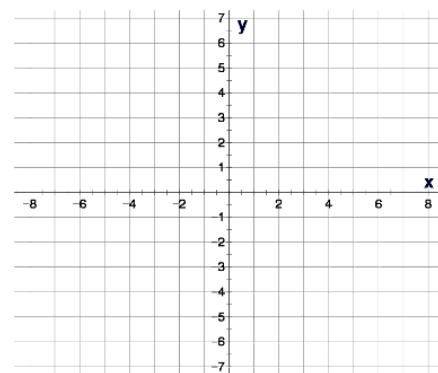
5.  $y = (-x + 2)^2$



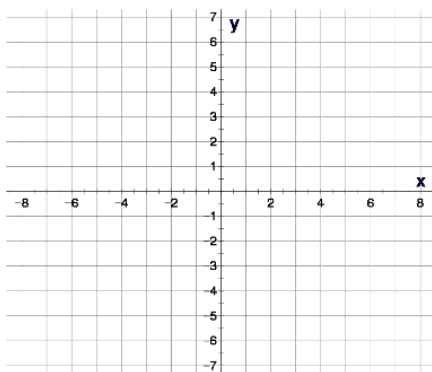
5.  $y = \sqrt{-x + 4}$



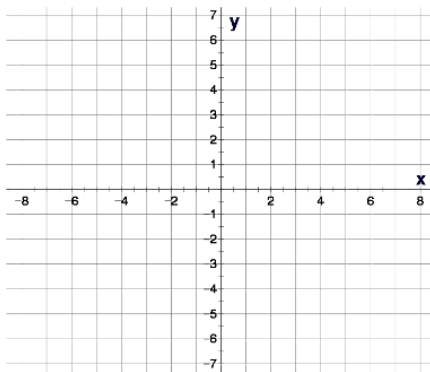
5.  $y = |-x - 3|$



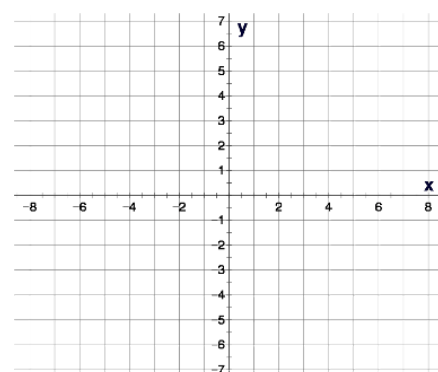
6.  $y = (-x + 2)^2 - 3$



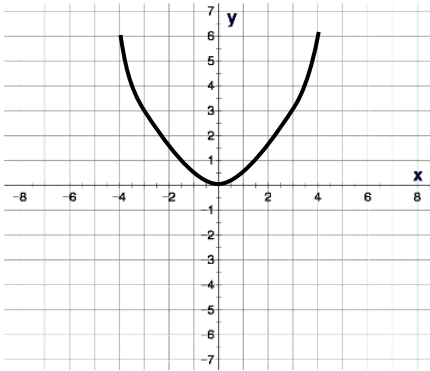
6.  $y = \sqrt{-x + 4} + 5$



6.  $y = |-x - 3| - 4$



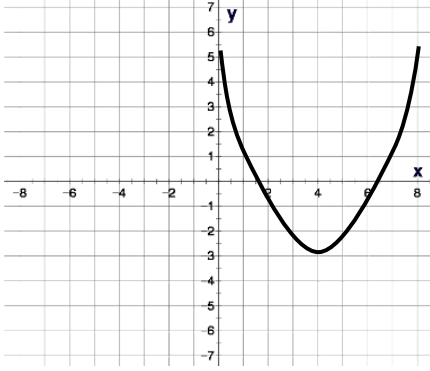
1.



Domain:

Range:

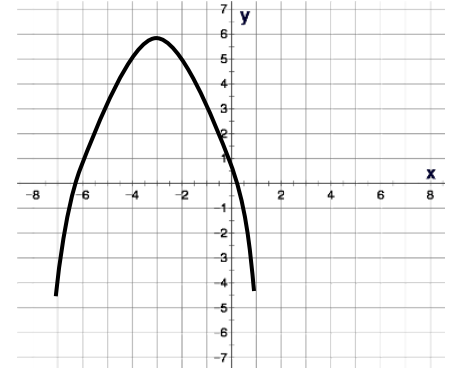
1.



Domain:

Range:

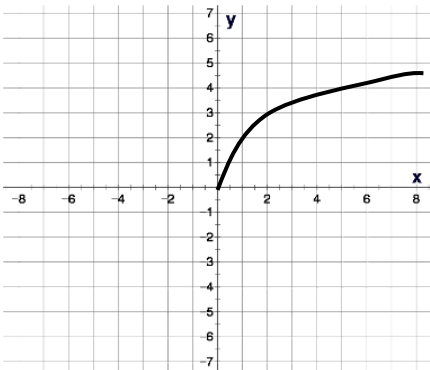
1.



Domain:

Range:

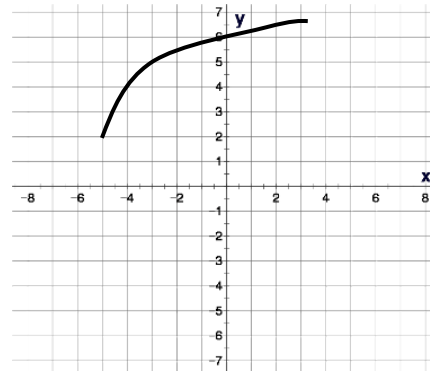
2.



Domain:

Range:

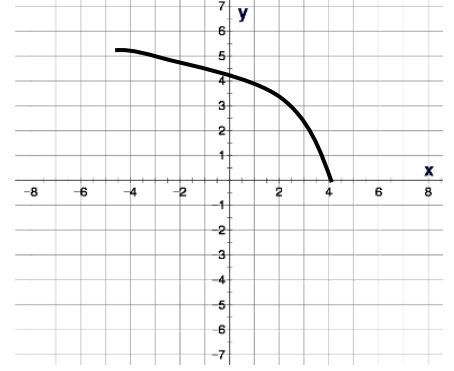
2.



Domain:

Range:

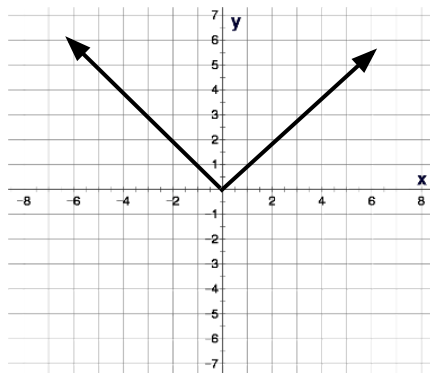
2.



Domain:

Range:

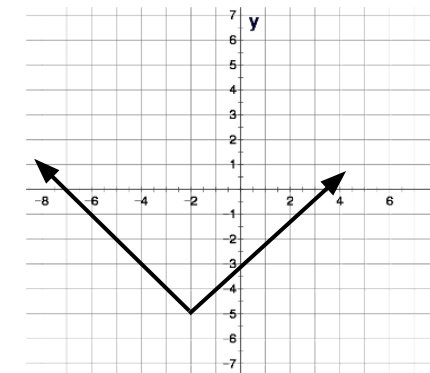
3.



Domain:

Range:

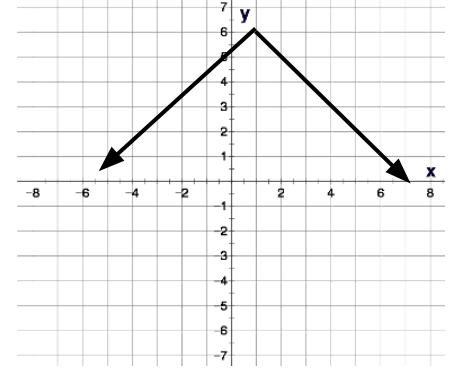
3.



Domain:

Range:

3.

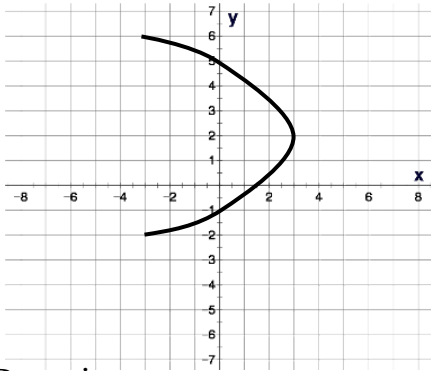


Domain:

Range:

Find the domain and range of the graph

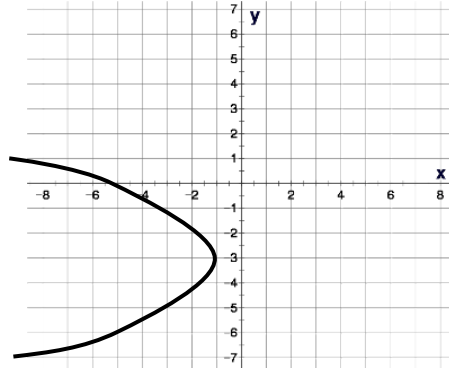
4.



Domain:

Range:

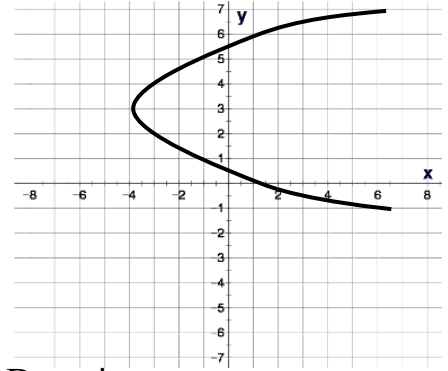
4.



Domain:

Range:

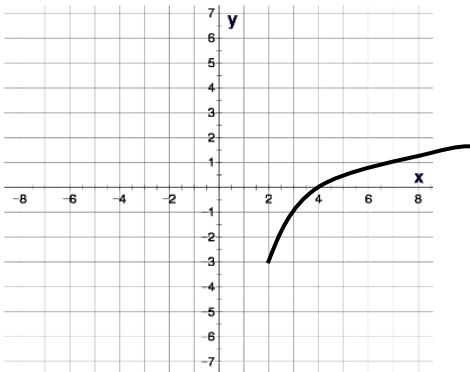
4.



Domain:

Range:

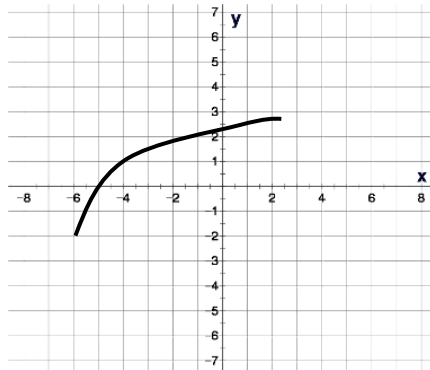
5.



Domain:

Range:

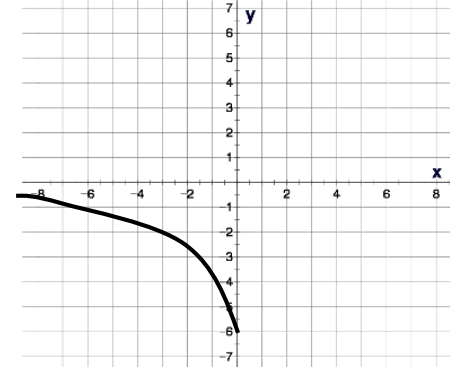
5.



Domain:

Range:

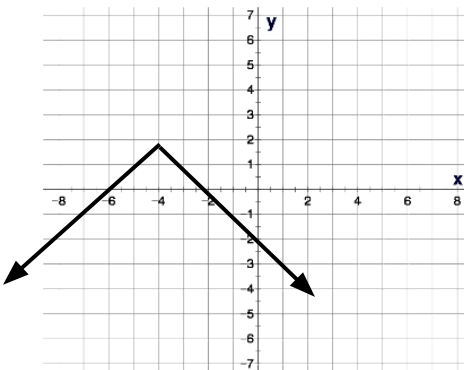
5.



Domain:

Range:

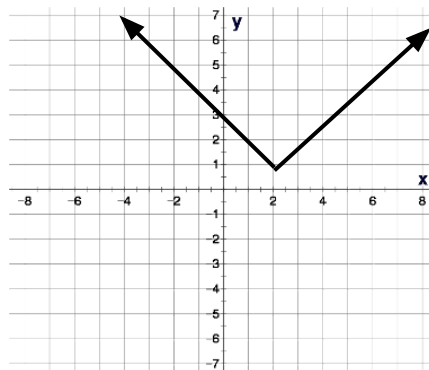
6.



Domain:

Range:

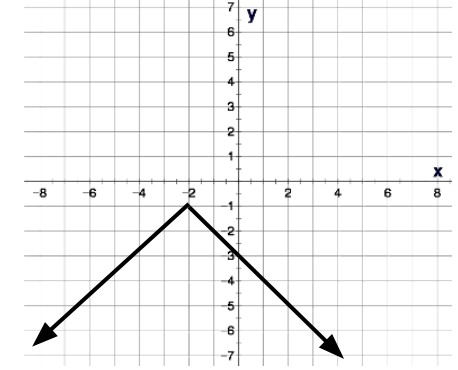
6.



Domain:

Range:

6.



Domain:

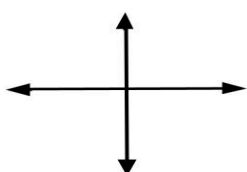
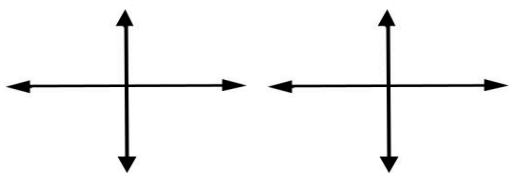
Range:

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

$y =$

$y =$

$y =$



Domain:

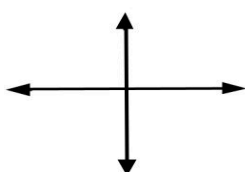
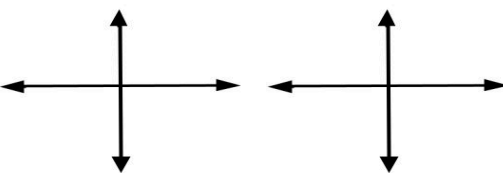
Range:

1.  $y = (x - 2)^2 + 3$

$y =$

$y =$

$y =$



Domain:

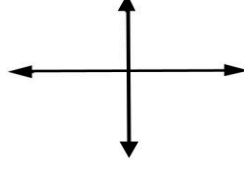
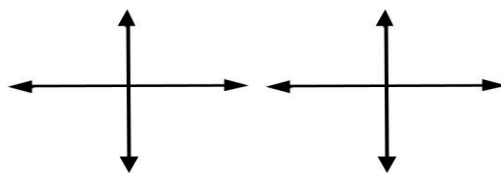
Range:

1.  $y = |x - 2| + 3$

$y =$

$y =$

$y =$



Domain:

Range:

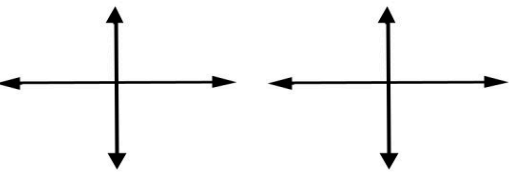
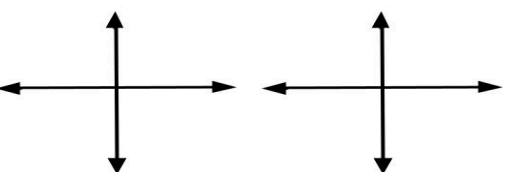
2.  $y = -\sqrt{x - 2} + 3$

$y =$

$y =$

$y =$

$y =$



Domain:

Range:

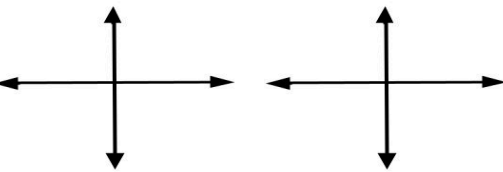
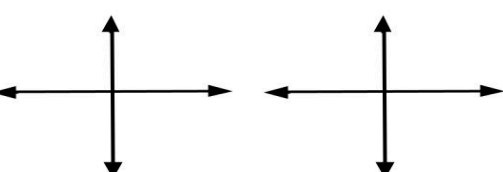
2.  $y = -(x - 2)^2 + 3$

$y =$

$y =$

$y =$

$y =$



Domain:

Range:

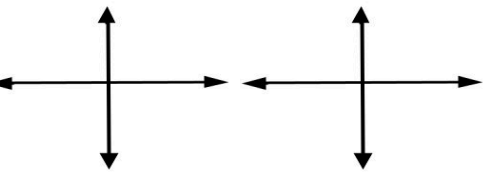
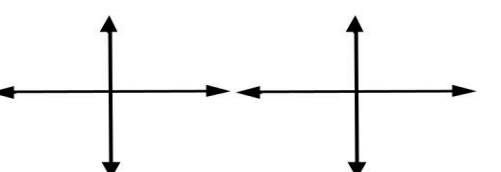
2.  $y = -|x - 2| + 3$

$y =$

$y =$

$y =$

$y =$



Domain:

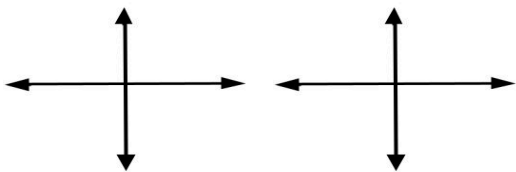
Range:

3.  $y = -|x + 6|$

$y =$

$y =$

$y =$



Domain:

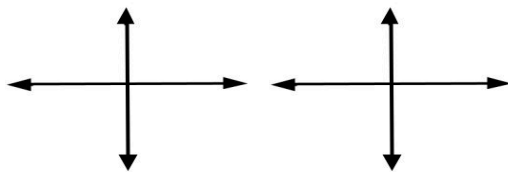
Range:

3.  $y = -\sqrt{x + 5}$

$y =$

$y =$

$y =$



Domain:

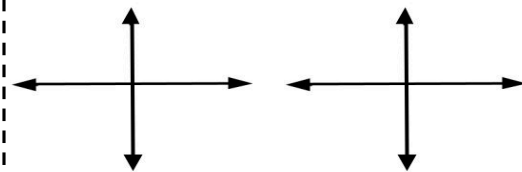
Range:

3.  $y = -(x + 4)^2$

$y =$

$y =$

$y =$



Domain:

Range:

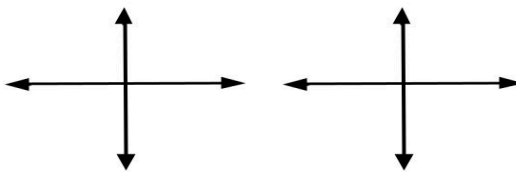
4.  $y = -|x + 6| - 3$

$y =$

$y =$

$y =$

$y =$



Domain:

Range:

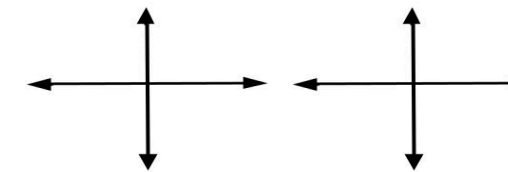
4.  $y = -\sqrt{x + 5} + 2$

$y =$

$y =$

$y =$

$y =$



Domain:

Range:

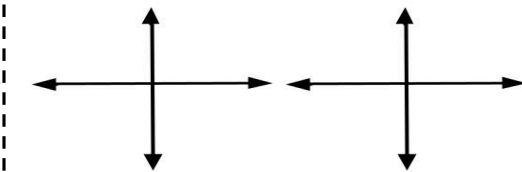
4.  $y = -(x + 4)^2 - 4$

$y =$

$y =$

$y =$

$y =$



Domain:

Range:

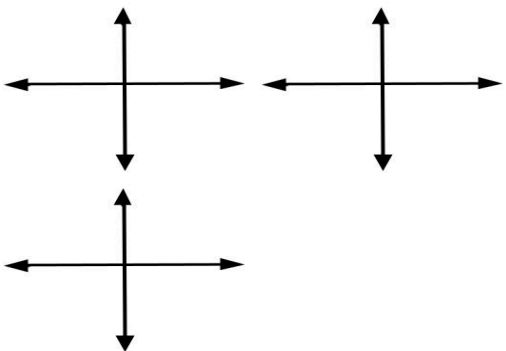


5.  $y = |-x + 2|$

$y =$

$y =$

$y =$



Domain:

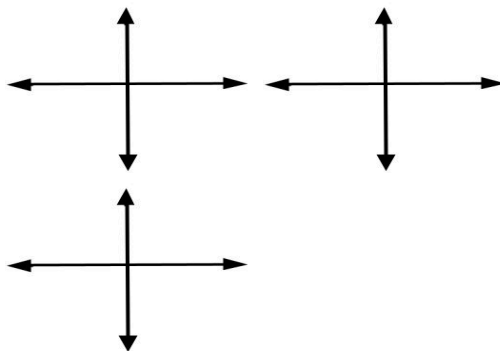
Range:

5.  $y = \sqrt{-x + 3}$

$y =$

$y =$

$y =$



Domain:

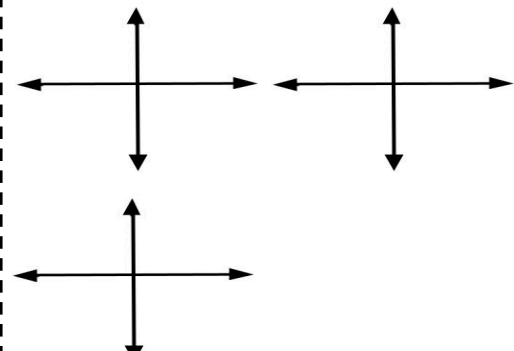
Range:

5.  $y = (-x + 4)^2$

$y =$

$y =$

$y =$



Domain:

Range:

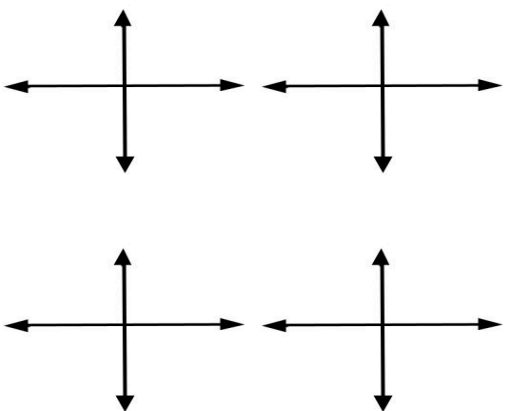
6.  $y = |-x - 2| - 3$

$y =$

$y =$

$y =$

$y =$



Domain:

Range:

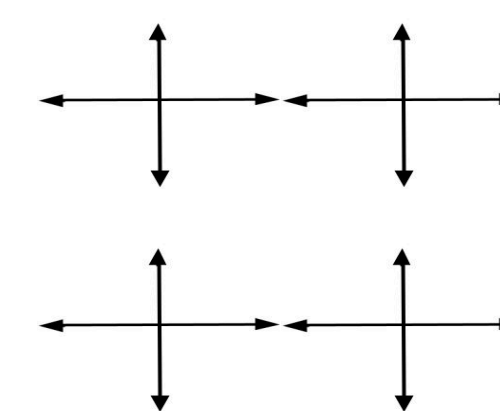
6.  $y = \sqrt{-x - 3} + 2$

$y =$

$y =$

$y =$

$y =$



Domain:

Range:

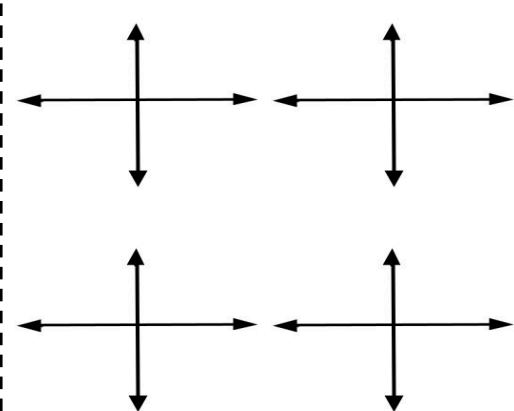
6.  $y = (-x - 4)^2 - 4$

$y =$

$y =$

$y =$

$y =$



Domain:

Range:

# Finding Domain of Functions Part 1

[29.1]

1.  $f(x) = 3x - 10$

1.  $f(x) = 3x^2 - 9x - 30$

1.  $f(x) = x^3 + 3x^2 - 10x$

2.  $f(x) = \frac{x+6}{-4x}$

2.  $f(x) = \frac{5x-4}{10x}$

2.  $f(x) = \frac{x+7}{-3x}$

3.  $f(x) = \frac{x-3}{x+5}$

3.  $f(x) = \frac{2x+4}{x-7}$

3.  $f(x) = \frac{x-1}{x-0}$

4.  $f(x) = \frac{x-5}{4x+2}$

4.  $f(x) = \frac{x+2}{2x-10}$

4.  $f(x) = \frac{x}{3x+6}$

$x$ : All real #'s  $(-\infty, \infty)$  Graph

$x \neq 0$   $(-\infty, 0) \cup (0, \infty)$  Graph

$x \neq 7$   $(-\infty, 7) \cup (7, \infty)$  Graph

$x \neq 5$   $(-\infty, 5) \cup (5, \infty)$  Graph

5.  $f(x) = \frac{x}{4x^2-9}$

5.  $f(x) = \frac{2x+4}{9x^2-16}$

5.  $f(x) = \frac{x^2-9}{169x^2-196}$

6.  $f(x) = \frac{-8x}{x^2-9x+18}$

6.  $f(x) = \frac{10}{x^2-11x+18}$

6.  $f(x) = \frac{2x-4}{x^2-19x+18}$

$x \neq -\frac{4}{3}, x \neq \frac{4}{3} \quad (-\infty, -\frac{4}{3}) \cup (-\frac{4}{3}, \frac{4}{3}) \cup (\frac{4}{3}, \infty)$  Graph

$x \neq 2, x \neq 9 \quad (-\infty, 2) \cup (2, 9) \cup (9, \infty)$  Graph

7.  $f(x) = \frac{x}{2x^2 + 7x - 15}$

7.  $f(x) = \frac{2x+4}{3x^2 - 13x - 10}$

7.  $f(x) = \frac{x^2 - 4}{2x^2 - 1x - 15}$

8.  $f(x) = \frac{x-8}{x^2 + 2x - 15}$

$x \neq -\frac{2}{3}, x \neq 5$   $(-\infty, -\frac{2}{3}) \cup (-\frac{2}{3}, 5) \cup (5, \infty)$  Graph

8.  $f(x) = \frac{2x-8}{x^2 - 3x - 10}$

8.  $f(x) = \frac{x^2 - 49}{x^2 - 7x - 18}$

1.  $f(x) = \sqrt{x + 4}$


1.  $f(x) = \sqrt{x + 9}$

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

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

2.  $f(x) = \sqrt{3x - 9}$


2.  $f(x) = \sqrt{4x + 16}$


$x \geq -9$   $[-9, \infty)$    $9$

3.  $f(x) = \sqrt{-5x + 40}$

3.  $f(x) = \sqrt{-2x + 18}$

3.  $f(x) = \sqrt{-3x + 24}$

$x \geq 3$   $[3, \infty)$    $3$

$x \leq 9$   $(-\infty, 9]$    $9$

Finding Domain Part 2

[30.2]

4.  $f(x) = \sqrt{-5x - 60}$

4.  $f(x) = \sqrt{-2x - 24}$

4.  $f(x) = \sqrt{-3x - 60}$

5.  $f(x) = \sqrt{18 - 3x}$

5.  $f(x) = \sqrt{12 - 6x}$

5.  $f(x) = \sqrt{18 - 2x}$

6.  $f(x) = \sqrt{18 - 4x}$

6.  $x \leq 2$   $(-\infty, 2]$   $2$   
 $f(x) = \sqrt{12 - 8x}$

6.  $f(x) = \sqrt{18 - 10x}$

7.  $f(x) = \sqrt{4x}$

7.  $f(x) = \sqrt{8x}$

7.  $f(x) = \sqrt{10x}$

8.  $f(x) = \sqrt{x^2 - 7x + 6}$

8.  $f(x) = \sqrt{x^2 - 9x + 8}$

8.  $f(x) = \sqrt{x^2 - 7x + 10}$

$x \leq 1$  or  $x \geq 8$   $(-\infty, 1] \cup [8, \infty)$  Graph

9.  $f(x) = \sqrt{x^2 + 5x + 6}$

9.  $f(x) = \sqrt{x^2 + 6x + 8}$

9.  $f(x) = \sqrt{x^2 + 11x + 10}$

$x \leq -4, x \geq -2$   $(-\infty, -4] \cup [-2, \infty)$  Graph

10.  $f(x) = \sqrt{x^2 - x - 20}$

10.  $f(x) = \sqrt{x^2 - x - 12}$

10.  $f(x) = \sqrt{x^2 - x - 6}$

11.  $f(x) = \sqrt{x^2 - 5x + 6}$

11.  $f(x) = \sqrt{x^2 - 6x + 8}$

11.  $f(x) = \sqrt{x^2 - 11x + 10}$