

May 20, 2021

Parents,

As you may know it is very easy for students to lose math skills over the summer. In an effort to help decrease this “summer slide” in math, students will be issued a few assignments on their mymathlab.com Algebra II class from this past school year. These assignments will be short and sweet, but designed to help your student retain what they have learned from this school year.

These summer assignments will count as your student’s first homework assignments in the first quarter of the 2021-2022 school year. Also, your student will be given a quiz during the first week of school covering the math skills retaught through these assignments. This quiz will count as the first quiz of the first quarter of the new school year.

****The exception would be those students who will be enrolling in Dual Enrollment Math****

- **These students will not receive graded credit for the summer work as it is not allowed by the university.**

If your student forgets his/her username and password, please email his/her teacher.

Kaleb Gardner - kgardner@hbcnsi.org

OR....

If your student does not have a mymathlab account yet, please download the PDF of the assignments from the HBCS website.

Kind Regards,

HBCS Math Department

Student: _____
Date: _____

Instructor: Kaleb Gardner
Course: Algebra III

Assignment: Summer Prep for Algebra
III PDF

1. Solve.

$$5 - 4(x + 2) = 6x - 13$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. $x =$ _____ (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. There is no solution.

ID: 1.1.8

2. Solve the equation.

$$4(2z + 3) = 6 - 2(z - 3)$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. $z =$ _____ (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. There is no solution.

ID: 1.1.9

3. Solve.

$$7(5x + 8) = -(x - 4)$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution is $x =$ _____. (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. There is no solution.

ID: 1.1.10

4. Solve.

$$-3(6 - x) + 4 = 6 - 5(x + 2)$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution is $x =$ _____. (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. There is no solution.

ID: 1.1.11

5. Solve the equation.

$$\frac{1}{2} - \frac{1}{5}y = \frac{7}{5}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. $y =$ _____ (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. There is no solution.

ID: 1.1.12

6. Solve the equation.

$$\frac{1}{3}x - 3 = 6 - \frac{9}{4}x$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. $x =$ _____ (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. There is no solution.

ID: 1.1.13

7. Solve.

$$0.14x + 0.3(x - 4) = 0.01(3x - 3)$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. $x =$ _____ (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. There is no solution.

ID: 1.1.19

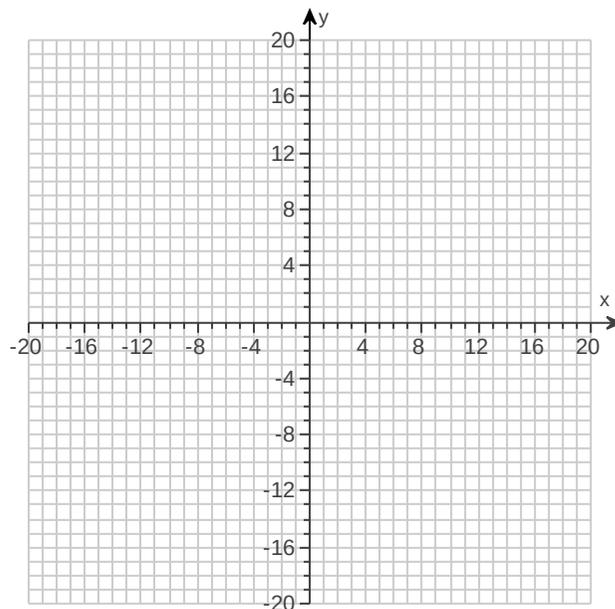
8. Graph the equation $y = \frac{1}{4}x - 3$ by plotting points.

Complete the ordered pairs in the table below.

x	(x,y)
-8	
-4	
0	
4	

(Simplify your answers. Type ordered pairs.)

Use the 4-point graphing tool  to graph the equation.



ID: 2.1.4

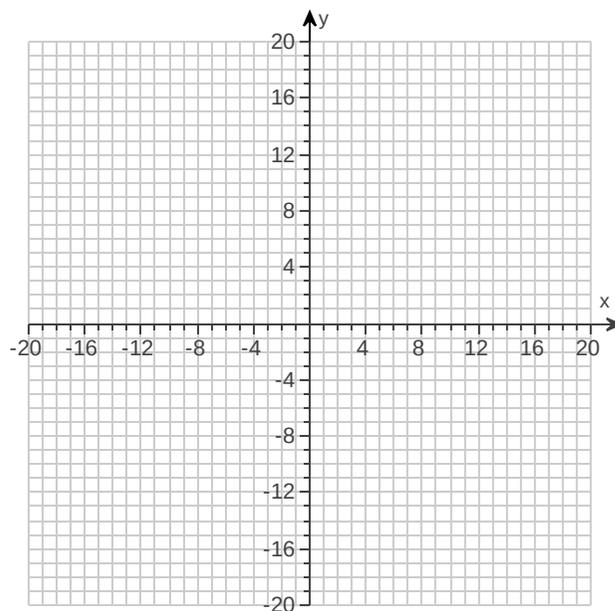
9. Graph the equation $3x - 2y = 4$ by plotting points.

Complete the ordered pairs in the table below.

x	(x,y)
-4	
-2	
0	
2	

(Simplify your answers. Type ordered pairs.)

Use the 4-point graphing tool  to graph the equation.



ID: 2.1.5

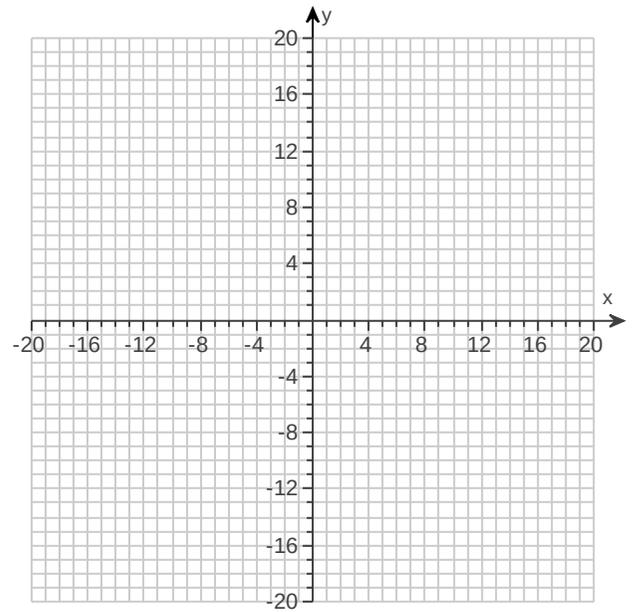
10. Graph the equation $y = x^2 - 6x - 2$ by plotting the points.

Complete the ordered pairs in the table below.

x	(x,y)
1	
2	
3	
4	

(Type ordered pairs.)

Use the 4-point graphing tool  to graph the equation.



ID: 2.1.8

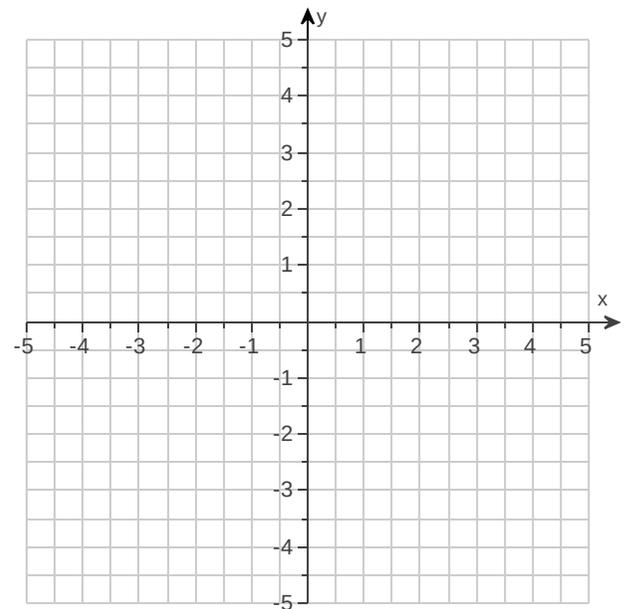
11. Sketch the graph of $y = \frac{1}{2}x^3$ by plotting points.

Find the points on the graph of the equation. Complete the table below.

x	(x,y)
-2	
0	
1	
2	

(Type ordered pairs.)

Use the graphing tool to graph the equation.



ID: 2.1.9

12. Find the x- and y- intercepts of the graph of the given equation.

$$y = 3x + 4$$

Find the x-intercept(s). Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The x-intercept(s) is/are $x =$ _____ .
(Simplify your answer. Use integers or fractions for any numbers in the expression. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)
- B. There are no x-intercepts.

Find the y-intercept(s). Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The y-intercept(s) is/are $y =$ _____ .
(Simplify your answer. Use integers or fractions for any numbers in the expression. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)
- B. There are no y-intercepts.

ID: 2.1.13

13. Find the x- and y- intercepts of the graph of the given equation.

$$4x - 7y = 20$$

Find the x-intercept(s). Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The x-intercept(s) is/are $x =$ _____ .
(Simplify your answer. Use integers or fractions for any numbers in the expression. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)
- B. There are no x-intercepts.

Find the y-intercept(s). Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The y-intercept(s) is/are $y =$ _____ .
(Simplify your answer. Use integers or fractions for any numbers in the expression. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)
- B. There are no y-intercepts.

ID: 2.1.14

14. Find the x- and y- intercepts of the graph of the given equation.

$$y = x^2 - 2x - 35$$

Find the x-intercept(s). Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The x-intercept(s) is/are $x = \underline{\hspace{2cm}}$.
(Simplify your answer. Use integers or fractions for any numbers in the expression. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)
- B. There are no x-intercepts.

Find the y-intercept(s). Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The y-intercept(s) is/are $y = \underline{\hspace{2cm}}$.
(Simplify your answer. Use integers or fractions for any numbers in the expression. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)
- B. There are no y-intercepts.

ID: 2.1.15

15. Find the slope of the line containing the pair of points.

$(-2, 3)$ and $(3, -3)$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The slope is $\underline{\hspace{2cm}}$. (Simplify your answer. Type an integer or a fraction.)
- B. The slope is undefined.

ID: 2.3.1

16. Find the slope of the line containing the pair of points.

$(-1, -8)$ and $(12, -1)$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The slope is $\underline{\hspace{2cm}}$. (Simplify your answer. Type an integer or a fraction.)
- B. The slope is undefined.

ID: 2.3.2

17. Find the point-slope form of the line with the given slope which passes through the indicated point.

Slope = $\frac{1}{2}$; Line passes through the point $(-7, 7)$

Write an equation for the line in point-slope form.

(Use integers or simplified fractions for any numbers in the equation.)

ID: 2.3.11

18. Find the point-slope form of the line with the given slope which passes through the indicated point.

Slope = 5; Line passes through the point (- 4,6)

Write an equation for the line in point-slope form.

(Use integers or simplified fractions for any numbers in the equation.)

ID: 2.3.13

19. Find the slope-intercept form of the line with the given slope and y-intercept.

Slope = 2; y-intercept = - 9

What is the equation of the line?

(Simplify your answer. Type your answer in slope-intercept form. Use integers or fractions for any numbers in the equation.)

ID: 2.3.15

20. Find the slope-intercept form of the line with the given slope and y-intercept.

Slope = $-\frac{1}{8}$; y-intercept = $\frac{1}{5}$

What is the equation of the line?

(Simplify your answer. Type your answer in slope-intercept form. Use integers or fractions for any numbers in the equation.)

ID: 2.3.16

21. Find the slope-intercept form of the line with the given slope and y-intercept.

Slope = 0; y-intercept = 7

What is the equation of the line?

(Simplify your answer. Type your answer in slope-intercept form. Use integers or fractions for any numbers in the equation.)

ID: 2.3.18

22. Given the line in standard form, determine the slope, y-intercept, and sketch the line.

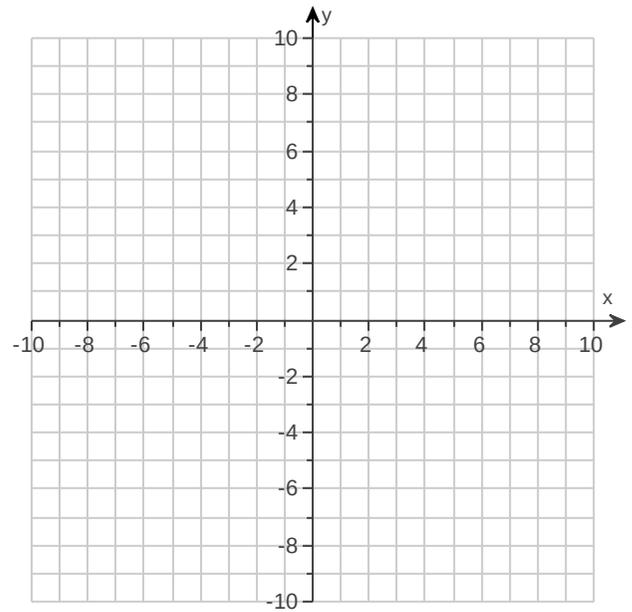
$$6x - y = 9$$

Select the correct choice below and, if necessary, fill in the answer box(es) to complete your choice.

(Type an integer or a simplified fraction.)

- A. $m =$ _____, $b =$ _____
the slope does not exist, $b =$ _____
- B. _____
- C. $m =$ _____, the y-intercept does not exist
- D. The slope and y-intercept do not exist.

Use the graphing tool to graph the line.



ID: 2.3.23

23. Given the equation of a line in standard form, determine the slope, y-intercept, and sketch the line.

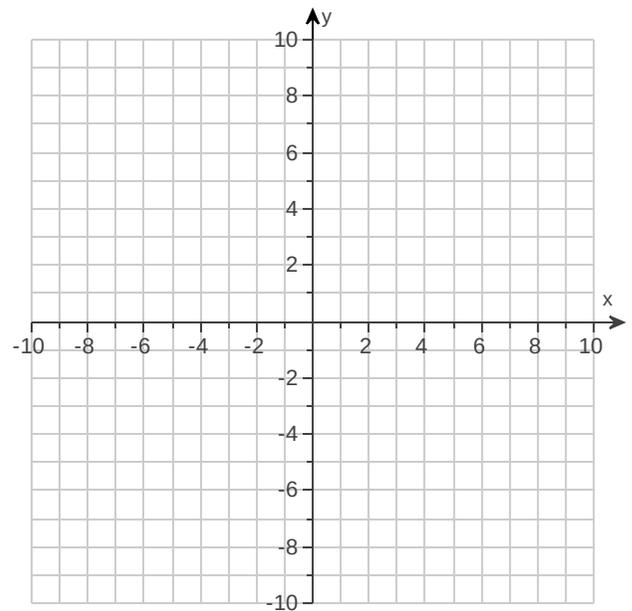
$$x - 3y = -18$$

Select the correct choice below and, if necessary, fill in any answer boxes to complete your choice.

(Type an integer or a simplified fraction.)

- A. $m =$ _____, $b =$ _____
- B. $m =$ _____, the y-intercept does not exist
- C. the slope does not exist, $b =$ _____
- D. The slope and y-intercept do not exist.

Use the graphing tool to graph the line.



ID: 2.3.24

24. Write the equation of the horizontal line passing through the point $(-5, 4)$.

The equation is _____. (Simplify your answer.)

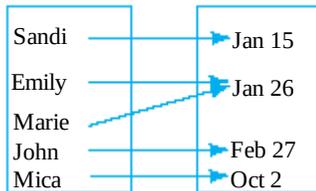
ID: 2.3.31

25. Find an equation of the vertical line through (5, 2).

The equation is _____ . (Type your answer in standard form.)

ID: 2.3.32

26. Determine whether the relation represents a function. State the domain and the range of the relation.



Does the relation represent a function?

- Yes
 No

Select the list that represents the elements of the domain.

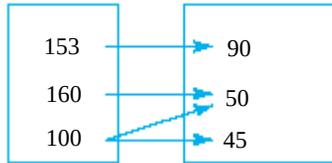
- Jan 15, Jan 26, Feb 27, Oct 2
 Sandi, John, Mica, Jan 15, Feb 27, Oct 2
 Sandi, Emily, Marie, John, Mica
 Emily, Marie, Jan 26

Select the list that represents the elements of the range.

- Jan 15, Feb 27, Oct 2, Sandi, John, Mica
 Sandi, Emily, Marie, John, Mica
 Jan 15, Jan 26, Feb 27, Oct 2
 Jan 26, Emily, Marie

ID: 3.1.1

27. Determine whether the relation represents a function. State the domain and the range of the relation.



Does the relation represent a function?

- Yes
 No

Select the list that represents the elements of the domain.

- 90, 50, 45
 153, 160, 100
 153, 160, 90
 100, 50, 45

Select the list that represents the elements of the range.

- 90, 50, 45
 50, 45, 100
 153, 160, 100
 90, 153, 160

ID: 3.1.2

28. a) Determine if the relation is also a function.
b) Give the domain and range of the relation or function.

$\{(5,1), (9,5), (3,9), (9,2), (5, 3), (3, 2)\}$

a) Is the relation a function?

- Yes
 No

b) List the elements of the domain. Choose the correct answer below.

- A. $D = \{3, 2, 1, 5, 9\}$
 B. $D = \{3, 2\}$
 C. $D = \{5, 9, 3, 3, 0\}$
 D. $D = \{5, 9, 3\}$

List the elements of the range. Choose the correct answer below.

- A. $R = \{5, 9, 3, 3, 0\}$
 B. $R = \{3, 2\}$
 C. $R = \{5, 9, 3\}$
 D. $R = \{3, 2, 1, 5, 9\}$

ID: 3.1.3

29. Evaluate the function $f(y) = 5y - 2$ at the indicated values.

- a) Find $f(-2)$.
b) Find $f\left(\frac{1}{3}\right)$.
c) Find $f(y - 7)$.
-

a) $f(-2) = \underline{\hspace{2cm}}$ (Simplify your answer. Type an integer or a simplified fraction.)

b) $f\left(\frac{1}{3}\right) = \underline{\hspace{2cm}}$ (Simplify your answer. Type an integer or a simplified fraction.)

c) $f(y - 7) = \underline{\hspace{2cm}}$ (Simplify your answer. Do not factor.)

ID: 3.1.13

30. Evaluate the following function at the values 4, -4, and $x - 3$.

$$f(x) = x^2 + 4$$

$f(4) =$ _____ (Type an integer or a simplified fraction.)

$f(-4) =$ _____ (Type an integer or a simplified fraction.)

$f(x - 3) =$ _____

(Simplify your answer. Type an expression using x as the variable. Use integers or fractions for any numbers in the expression.)

ID: 3.1.14

31. Evaluate the following function at the values -4, 9, and a .

$$f(t) = \frac{t}{t + 2}$$

$f(-4) =$ _____ (Simplify your answer.)

$f(9) =$ _____ (Simplify your answer.)

$f(a) =$ _____

(Simplify your answer. Use integers or fractions for any numbers in the expression.)

ID: 3.1.15

32. Classify the given function as a polynomial function, rational function, or root function, and then find the domain. Write the domain in interval notation.

$$f(t) = 8t^4 + 3t^3 + 2t^2 + 9t - 5$$

Classify the function $f(t) = 8t^4 + 3t^3 + 2t^2 + 9t - 5$. Choose the correct answer below.

- Root function
 Rational function
 Polynomial function

The domain of $f(t) = 8t^4 + 3t^3 + 2t^2 + 9t - 5$ is _____.

(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

ID: 3.1.42

33. Classify the given function as a polynomial function, rational function, or root function, and then find the domain. Write the domain in interval notation.

$$h(t) = \frac{4+t}{7t^2}$$

Classify the function $h(t) = \frac{4+t}{7t^2}$. Choose the correct answer below.

- Polynomial function
 Root function
 Rational function

The domain of $h(t) = \frac{4+t}{7t^2}$ is _____.

(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

ID: 3.1.43

34. Classify the given function as a polynomial function, rational function, or root function, and then find the domain. Write the domain in interval notation.

$$g(x) = \sqrt[4]{7-x}$$

Classify the function $g(x) = \sqrt[4]{7-x}$. Choose the correct answer below.

- Rational function
 Polynomial function
 Root function

The domain of $g(x) = \sqrt[4]{7-x}$ is _____.

(Type your answer in interval notation. Simplify your answer. Use integers or fractions for any numbers in the expression.)

ID: 3.1.45

35. Find the x-intercept(s) and the y-intercept of the function.

$$f(x) = x^2 - 4x - 12$$

Select the correct choice below and fill in any answer boxes within your choice.

- A. The x-intercept(s) is/are $x =$ _____.
(Use a comma to separate answers as needed. Type an exact answer, using radicals as needed.)
- B. There is no x-intercept.

Select the correct choice below and fill in any answer boxes within your choice.

- A. The y-intercept is $y =$ _____.
(Type an exact answer, using radicals as needed.)
- B. There is no y-intercept.

ID: 3.2.3

36. Find the x-intercept(s) and the y-intercept of the function.

$$f(x) = x^3 + 2x^2 - 16x - 32$$

Select the correct choice below and fill in any answer boxes within your choice.

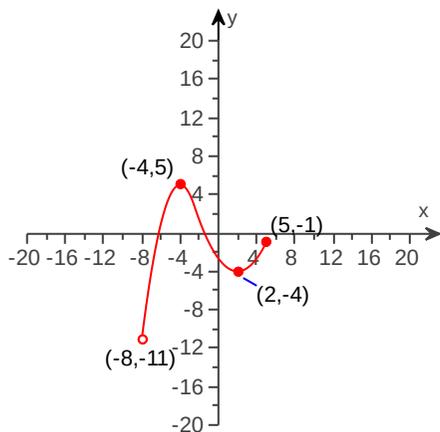
- A. The x-intercepts are $x =$ _____.
(Use a comma to separate answers as needed. Type an exact answer, using radicals as needed.)
- B. There is no x-intercept.

Select the correct choice below and fill in any answer boxes within your choice.

- A. The y-intercept is $y =$ _____.
(Type an exact answer, using radicals as needed.)
- B. There is no y-intercept.

ID: 3.2.5

37. Use the graph to determine the domain and range of the function.

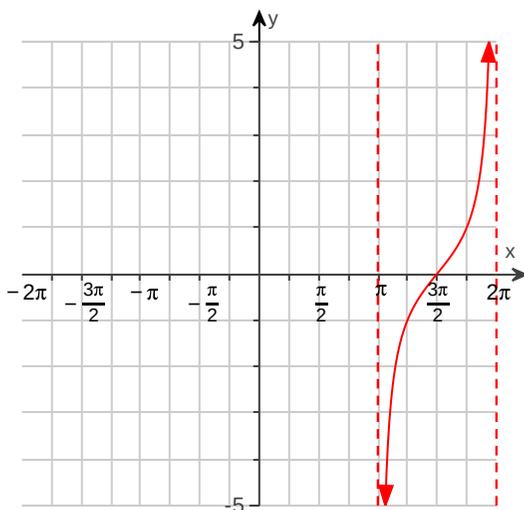


The domain is _____.
(Type your answer in interval notation.)

The range is _____.
(Type your answer in interval notation.)

ID: 3.2.14

38. Use the graph to determine the domain and range of the function.

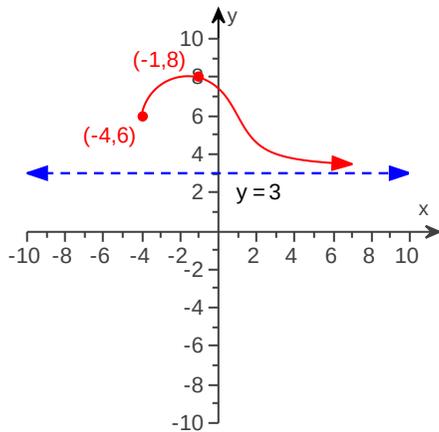


The domain is _____.
(Type your answer in interval notation. Type an exact answer in terms of π . Use integers or fractions for any numbers in the expression.)

The range is _____.
(Type your answer in interval notation. Type an exact answer in terms of π . Use integers or fractions for any numbers in the expression.)

ID: 3.2.15

39. Use the graph to determine the domain and range of the function.



The domain is _____.
(Type your answer in interval notation.)

The range is _____.
(Type your answer in interval notation.)

ID: 3.2.17

40. Decide whether f is even, odd, or neither.

$$f(x) = x^4 - 4x^2 + 7$$

Choose the correct statement.

- A. The function is even.
- B. The function is odd.
- C. The function is neither even nor odd.

ID: 3.2.32

41. Determine if the function is even, odd, or neither.

$$f(x) = x^{11} - x^4$$

The function is

- odd.
- even.
- neither.

ID: 3.2.33

42. Determine if the function is even, odd, or neither.

$$f(x) = x^{13} + x^5$$

The function is

- odd.
- even.
- neither.

ID: 3.2.34

43. Given the quadratic function in vertex form, address the following.

$$f(x) = (x - 5)^2 - 9$$

- a. What are the coordinates of the vertex?

The vertex is _____.
(Type an ordered pair.)

- b. Does the graph "open up" or "open down"?

- opens up
 opens down

- c. What is the equation of the axis of symmetry?

The axis of symmetry is _____.
(Type an equation.)

- d. Find any x-intercepts. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. $x =$ _____
(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)
 B. There is no x-intercept.

- e. Find the y-intercept. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. $y =$ _____
(Simplify your answer.)
 B. There is no y-intercept.

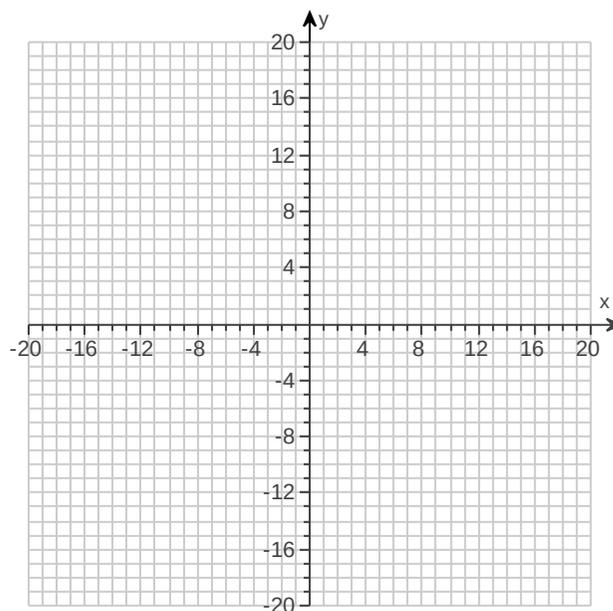
- f. Sketch the graph. Use the graphing tool to graph the function.

- g. State the domain and range.

The domain of f is the interval _____.
(Type your answer in interval notation.)

The range of f is the interval _____.
(Type your answer in interval notation.)

ID: 4.1.SbS-5



44. Given the quadratic function in vertex form, address the following.

$$f(x) = -(x - 4)^2 - 1$$

- a. What are the coordinates of the vertex?

The vertex is _____.
(Type an ordered pair.)

- b. Does the graph "open up" or "open down"?

- opens up
 opens down

- c. What is the equation of the axis of symmetry?

The axis of symmetry is _____.
(Type an equation.)

- d. Find any x-intercepts. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. $x =$ _____
(Simplify your answer, including any radicals. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)
- B. There is no x-intercept.

- e. Find the y-intercept. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. $y =$ _____
(Simplify your answer.)
- B. There is no y-intercept.

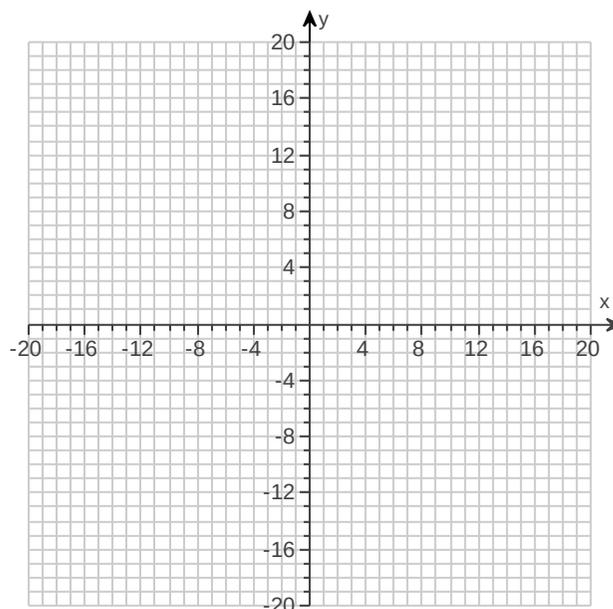
- f. Sketch the graph. Use the graphing tool to graph the function.

- g. State the domain and range.

The domain of f is the interval _____.
(Type your answer in interval notation.)

The range of f is the interval _____.
(Type your answer in interval notation.)

ID: 4.1.SbS-6



45. A baseball player swings and hits a pop fly straight up in the air to the catcher. The height of the baseball in meters t seconds after it is hit is given by the quadratic function $h(t) = -4.9t^2 + 9.8t + 1$. How long does it take for the baseball to reach its maximum height? What is the maximum height obtained by the baseball?
-

It takes _____ second(s) for the baseball to reach its maximum height.
(Round to one decimal place as needed.)

The maximum height obtained by the baseball is _____ meters.
(Round to three decimal places as needed.)

ID: 4.2.1

46. An object is launched vertically in the air at 29.4 meters per second from a 6-meter-tall platform. Using the projectile motion model $h(t) = -4.9t^2 + v_0t + h_0$, where $h(t)$ is the height of the projectile t seconds after its departure, v_0 is the initial velocity in meters per second, and h_0 is the initial height in meters, determine how long it will take for the object to reach its maximum height. What is the maximum height?
-

The object will reach its maximum height in _____ seconds.

The maximum height reached by the object is _____ meters.
(Round to two decimal places as needed.)

ID: 4.2.2