Student: Cole Lamers **Submitted:** 06/15/19 19:14	**Instructor:** Kelly Galarneau **Course:** CA&T Internet (70263) Galarneau	**Assignment:** Practice Quiz 2 (Chapter 2)

1. Find (a) the distance between P and Q and (b) the coordinates of the midpoint of the line segment PQ.

P(1,6), Q(1, 10)

(a) The distance between P and Q is 4. (Simplify your answer.)

(b) The coordinates of the midpoint of the line segment PQ are (1,8).
(Type an ordered pair. Use integers or a decimals for any numbers in the expression.)

2. Find the distance between the two points and the midpoint of the line segment joining them.

(2,0) and $(-2, -1)$

The distance is $\sqrt{17}$.
(Simplify your answer. Type an exact answer, using radicals as needed.)

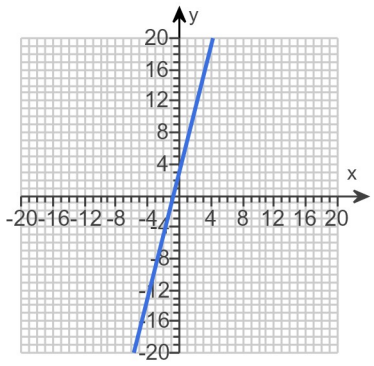
The midpoint is $(0, -0.5)$.
(Type an ordered pair. Simplify your answer.)

YOU ANSWERED: $(0, -1)$

3. Graph the equation.

$y = 4x + 3$

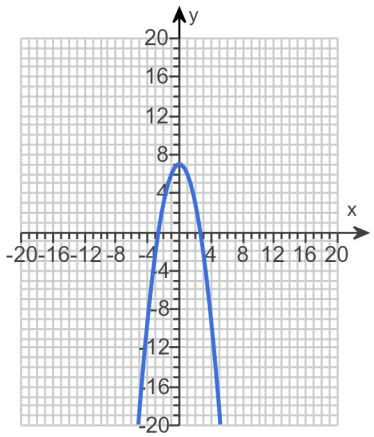
Use the graphing tool to graph the line.



4. Graph the following equation by plotting points.

$y = 7 - x^2$

Use the graphing tool to graph the equation.



5. Without sketching the graph, find the x-intercepts and y-intercepts of the graph of the equation.

$5x + 3y = 15$

What is/are the x-intercept(s)? Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** The x-intercept(s) is/are 3.
  (Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- **B.** There are no x-intercepts.

What is/are the y-intercept(s)? Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** The y-intercept(s) is/are 5.
  (Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- **B.** There are no y-intercepts.

6. Without sketching the graph, find the x-intercepts and y-intercepts of the graph of the equation.

$y = x^2 - 2x - 15$

What is/are the x-intercept(s)? Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** The x-intercept(s) is/are $-3, 5$.
  (Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- **B.** There are no x-intercepts.

What is/are the y-intercept(s)? Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** The y-intercept(s) is/are -15.
  (Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- **B.** There are no y-intercepts.

7. Test the equation for symmetry with respect to the x-axis, the y-axis, and the origin.

$y = -4x^2 + 3x^6$

Is the equation symmetric with respect to the x-axis? Choose the correct answer below.

- No
- Yes

Is the equation symmetric with respect to the y-axis? Choose the correct answer below.

- No
- Yes

Is the equation symmetric with respect to the origin? Choose the correct answer below.

- No
- Yes

8. Use the given conditions to find an equation in slope-intercept form of the following nonvertical line.

$m = -\frac{5}{6}$; y-intercept $= 2$

The equation in slope-intercept form is

- **A.** $y + \frac{5}{6}x = 2$
- **B.** $-\frac{5}{6}x + 2y = 0$
- **C.** $y = 2x - \frac{5}{6}$
- **D.** $y = -\frac{5}{6}x + 2$ ✔

9. Use the given conditions to find an equation in slope-intercept form of the line. If the line is vertical, write it in the form $x = h$.

x-intercept $= -7$ and y-intercept $= 14$

Write an equation for the line in slope-intercept form, if possible. If the line is vertical, write it in the form $x = h$.

$y = 2x + 14$

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

YOU ANSWERED: $2x + 14$

10. Find the equation of the line in slope-intercept form satisfying the given conditions.

Perpendicular to $y = 4x + 5$; y-intercept of 8

What is the equation of the line in slope-intercept form?

$y = -\frac{1}{4}x + 8$ (Use integers or fractions for any numbers in the equation.)

11. Find the domain of the following function.

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

Choose the correct domain below.

- **A.** $(-4, \infty)$
- **B.** $(-\infty, -4]$ or $[-4, \infty)$
- **C.** $(-\infty, -4)$
- **D.** $(-\infty, -4)$ or $(-4, \infty)$ ✔

12. Find the domain of the following function.

$G(x) = \frac{\sqrt{x-5}}{x+1}$

The domain of the function is $[5, \infty)$.

(Type your answer in interval notation.)

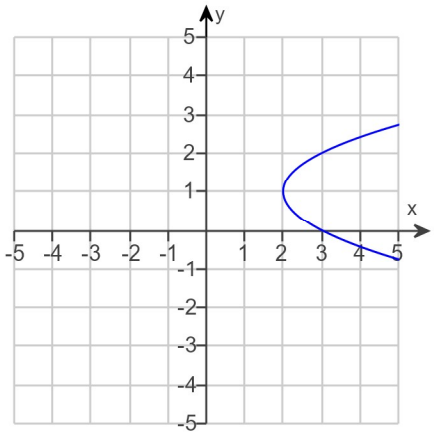
13. Find the domain of the function.

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

Choose the correct domain below.

- **A.** $(-\infty, -2) \cup (-2, 5) \cup (5, \infty)$
- **B.** $(-\infty, -5) \cup (-5, 2) \cup (2, \infty)$
- **C.** $(-\infty, -10) \cup (-10, -3) \cup (-3, \infty)$
- **D.** $(-\infty, \infty)$

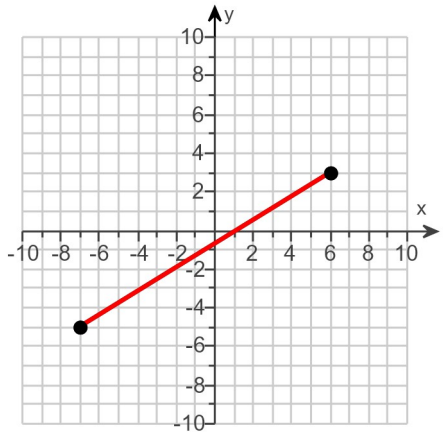
14. Use the vertical line test to determine whether the graph is the graph of a function.



Is this the graph of a function?

- No
- Yes

15. Find the domain and range of the function shown in the graph to the right.



What is the domain of the function?

$[-7, 6]$

(Type your answer in interval notation.)

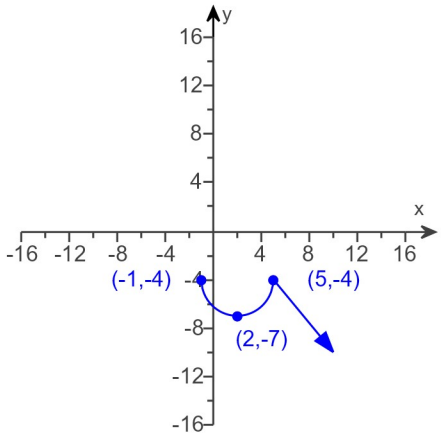
What is the range of the function?

$[-5, 3]$

(Type your answer in interval notation.)

16.

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



What is the domain of the function?

$[-1,\infty)$

(Type your answer in interval notation.)

What is the range of the function?

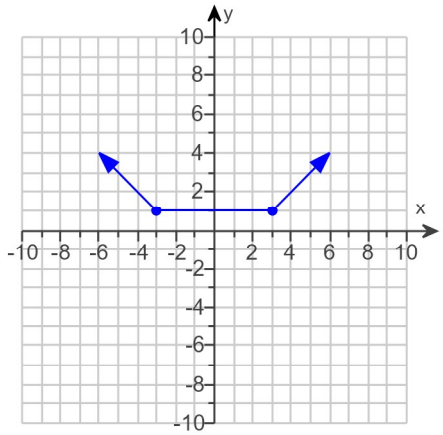
$(-\infty,-4]$

(Type your answer in interval notation.)

YOU ANSWERED: $[-4,\infty)$

17.

Determine the open intervals of the domain for which the function shown in the graph below is **(a)** increasing, **(b)** decreasing, and **(c)** constant.



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

- **A.** The function is increasing on the open interval $(3,\infty)$.
  (Type your answer in interval notation.)
- **B.** The function is never increasing.

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

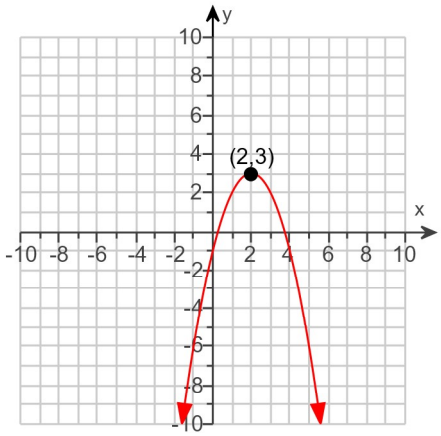
- **A.** The function is decreasing on the open interval $(-\infty,-3)$.
  (Type your answer in interval notation.)
- **B.** The function is never decreasing.

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

- **A.** The function is constant on the open interval $(-3,3)$.
  (Type your answer in interval notation.)
- **B.** The function is never constant.

18.

Locate relative maximum and relative minimum points on the graph shown to the right. State whether each relative extremum point is a turning point.



Where are the relative minimum points on the graph? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** (Type an ordered pair. Use a comma to separate answers as needed.)
- **B.** There are no relative minimum points.

Where are the relative maximum points on the graph? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

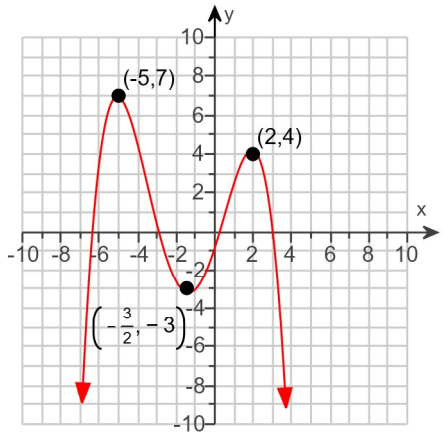
- **A.** (2,3) (Type an ordered pair. Use a comma to separate answers as needed.)
- **B.** There are no relative maximum points.

Which of the relative extremum points are turning points? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** (2,3) (Type an ordered pair. Use a comma to separate answers as needed.)
- **B.** There are no turning points.

19.

Locate relative maximum and relative minimum points on the graph shown to the right. State whether each relative extremum point is a turning point.



Where are the relative maximum points on the graph? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $(-5,7),(2,4)$
  (Type an ordered pair. Use a comma to separate answers as needed.)
- **B.** There are no relative maximum points.

Where are the relative minimum points on the graph? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

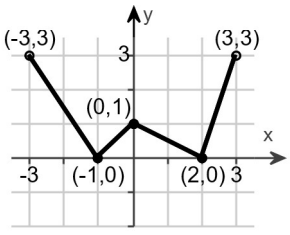
- **A.** $\left(-\frac{3}{2},-3\right)$
  (Type an ordered pair. Use a comma to separate answers as needed.)
- **B.** There are no relative minimum points.

Which of the relative extremum points are turning points?

- **A.** $\left(-\frac{3}{2},-3\right)$
- **B.** $(-5,7)$, $(2,4)$
- **C.** $(-5,7)$, $(2,4)$, and $\left(-\frac{3}{2},-3\right)$
- **D.** There are no turning points.

20.

Using the given graph of the function f, find whether the function is even, odd, or neither.

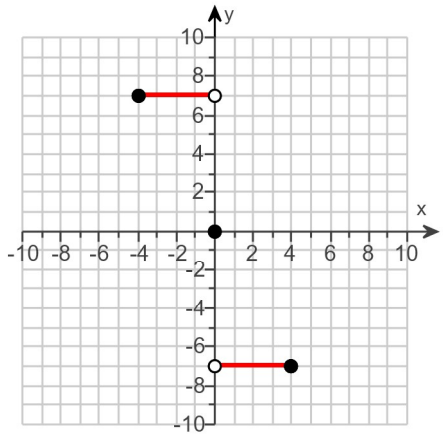


Determine whether the function is even, odd, or neither.

- Even
- Odd
- Neither

YOU ANSWERED: Even

21. The graph of a function is given to the right. State whether the function is odd, even, or neither.



Choose the correct answer below.

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

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

$f(x) = x^7 + x^5$

The function f is:

- **A.** even
- **B.** odd ✔
- **C.** neither

23. Describe the transformations that produce the graphs of g and h from the graph of f.

$f(x) = \sqrt{x}$

(a) $g(x) = \sqrt{x} + 4$ **(b)** $h(x) = \sqrt{x} - 5$

(a) Describe the transformations that produce the graph of g from the graph of f. Choose the correct answer below.

- **A.** Shift 4 units down
- **B.** Shift 4 units up ✔
- **C.** Shift 4 units to the left
- **D.** Shift 4 units to the right

(b) Describe the transformations that produce the graph of h from the graph of f. Choose the correct answer below.

- **A.** Shift 5 units to the right
- **B.** Shift 5 units to the left
- **C.** Shift 5 units up
- **D.** Shift 5 units down ✔

24. Describe the transformations that produce the graphs of g and h from the graph of f.

$f(x) = x^2$

(a) $g(x) = (x + 4)^2$ **(b)** $h(x) = (x - 1)^2$

(a) Describe the transformations that produce the graph of g from the graph of f. Choose the correct answer below.

- **A.** Shift 4 units to the right
- **B.** Shift 4 units to the left ✔
- **C.** Shift 4 units down
- **D.** Shift 4 units up

(b) Describe the transformations that produce the graph of h from the graph of f. Choose the correct answer below.

- **A.** Shift 1 unit down
- **B.** Shift 1 unit to the left
- **C.** Shift 1 unit to the right ✔
- **D.** Shift 1 unit up

25. Describe the transformations that produce the graphs of g and h from the graph of $f(x) = \sqrt{x}$.

a. $g(x) = \sqrt{x + 2} - 5$ **b.** $h(x) = \sqrt{x - 3} + 1$

a. Describe the transformations that produce the graph of g from the graph of f. Choose the correct answer below.

- **A.** Shift the graph of f(x) 2 units right and 5 units up.
- **B.** Shift the graph of f(x) 2 units left and 5 units up.
- **C.** Shift the graph of f(x) 2 units left and 5 units down. ✔
- **D.** Shift the graph of f(x) 2 units right and 5 units down.

b. Describe the transformations that produce the graph of h from the graph of f. Choose the correct answer below.

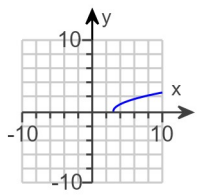
- **A.** Shift the graph of f(x) 3 units right and 1 unit down.
- **B.** Shift the graph of f(x) 3 units left and 1 unit down.
- **C.** Shift the graph of f(x) 3 units left and 1 unit up.
- **D.** Shift the graph of f(x) 3 units right and 1 unit up. ✔

26. Graph the following function.

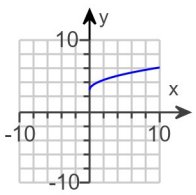
$y = \sqrt{x} + 3$

Choose the best graph.

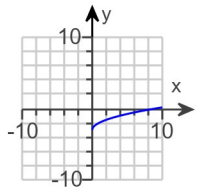
A.



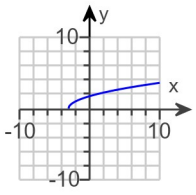
B. ✔



C.



D.



27. The functions f and g are given. Evaluate f ∘ g and find the domain of the composite function f ∘ g.

$f(x) = \sqrt{x-5}$; $g(x) = 3 - 5x$

$(f \circ g)(x) = \sqrt{-5x-2}$

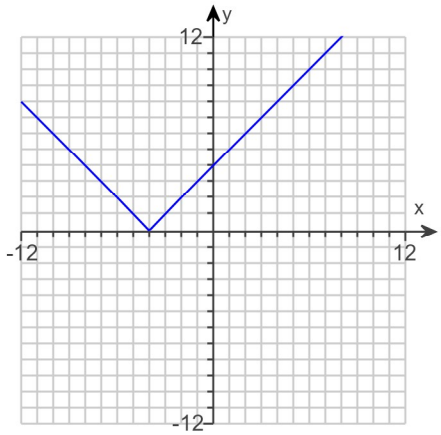
(Simplify your answer. Type an exact answer, using radicals as needed.)

The domain of f ∘ g is $\left(-\infty, -\frac{2}{5}\right]$.

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

YOU ANSWERED: $\left(\infty, -\frac{2}{5}\right]$

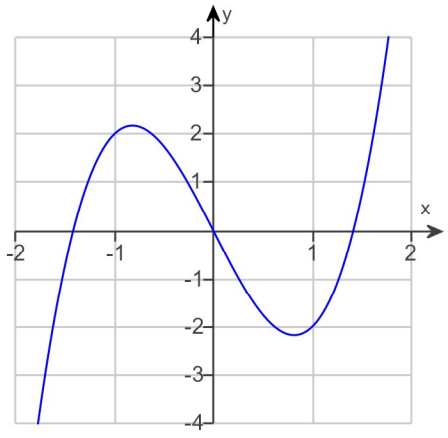
28. Determine whether the graph of the function is the graph of a one-to-one function.



Is the function one-to-one?

- [x] No
- [ ] Yes

29. The graph of a function is given to the right. Use the horizontal-line test to determine whether the function is one-to-one.



Is the function one-to-one?

- [x] Yes
- [x] No

YOU ANSWERED: Yes

30. Let $f(x) = \sqrt[3]{x+27}$.

a. Determine algebraically whether the given function is a one-to-one function.
b. If the function is one-to-one, find its inverse.
c. Sketch the graph of the function and its inverse on the same coordinate axes.
d. Give the domain and intercepts of the one-to-one function and its inverse function.

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a. Choose the correct answer below.

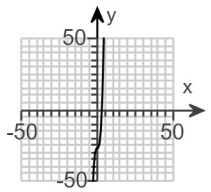
- **A.** The given function is a one-to-one function.
- **B.** The given function is not a one-to-one function.

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

- **A.** $f^{-1}(x) =$ $x^3 - 27$
- **B.** The given function is not a one-to-one function.

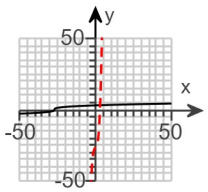
c. Choose the correct graph below. The graph of f(x) is shown by a solid curve and that of $f^{-1}(x)$ is shown by a dashed curve.

A.

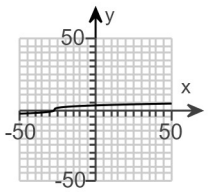


The given function is not a one-to-one.

B.

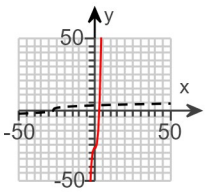


C.



The given function is not a one-to-one.

D.



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

- **A.** The domain of f(x) is $(-\infty,\infty)$ and that of $f^{-1}(x)$ is $(-\infty,\infty)$.
  (Type your answers in interval notation.)
- **B.** The given function is not a one-to-one function.

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

- **A.** The y-intercept of f(x) is 3 and that of $f^{-1}(x)$ is -27.
  (Type integers or simplified fractions.)
- **B.** The given function is not a one-to-one function.

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

- **A.** The x-intercept of f(x) is -27 and that of $f^{-1}(x)$ is 3.
  (Type integers or simplified fractions.)
- **B.** The given function is not a one-to-one function.

YOU ANSWERED: D.

A.: $[-27,\infty), (-\infty,\infty)$

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31. The function $f(x) = \frac{2}{x-4}$ is one-to-one.

(a) Find the inverse of f.
(b) State the domain and range of f.
(c) State the domain and range of f^{-1}.
(d) Graph f, f^{-1}, and $y = x$ on the same set of axes.

(a) Find the inverse of f.

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

(b) State the domain of f. Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** The domain of f is $\{x \mid x \neq 4\}$.
  (Type an inequality. Use integers or fractions for any numbers in the expression.)
- **B.** The domain of f is all real numbers.

State the range of f. Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** The range of f is $\{y \mid y \neq 0\}$.
  (Type an inequality. Use integers or fractions for any numbers in the expression.)
- **B.** The range of f is all real numbers.

(c) State the domain of f^{-1}. Select the correct choice below and, if necessary, fill in the answer box within your choice.

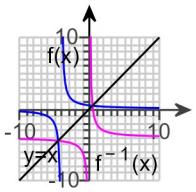
- **A.** The domain of f^{-1} is $\{x \mid x \neq 0\}$.
  (Type an inequality. Use integers or fractions for any numbers in the expression.)
- **B.** The domain of f^{-1} is all real numbers.

State the range of f^{-1}. Select the correct choice below and, if necessary, fill in the answer box within your choice.

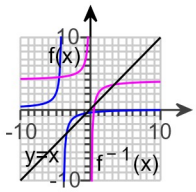
- **A.** The range of f^{-1} is $\{y \mid y \neq 4\}$.
  (Type an inequality. Use integers or fractions for any numbers in the expression.)
- **B.** The range of f^{-1} is all real numbers.

(d) Graph f, f^{-1}, and $y = x$ on the same set of axes. Choose the correct graph below.

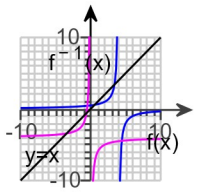
A.



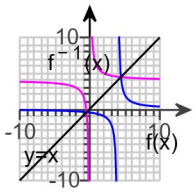
B.



C.



D. ✔



YOU ANSWERED: A.: $x < 4, x > 4$

A.: $y < 0, y > 0$

A.: $x < 0, x > 0$

A.: $y < 4, y > 4$