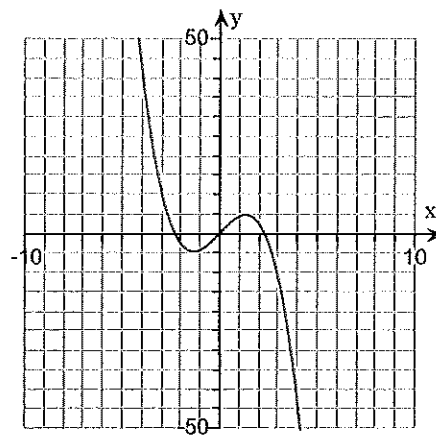
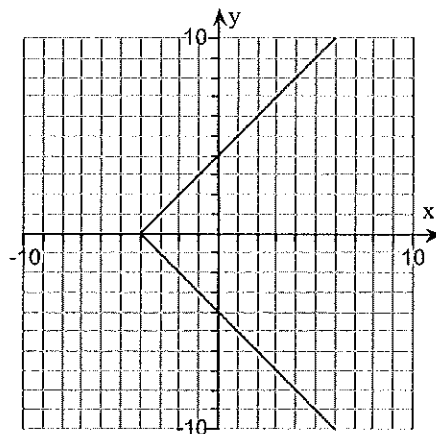


1. Determine visually whether the graph is symmetric with respect to the x-axis, the y-axis, or the origin.
- Is the graph symmetric with respect to the x-axis?
☐ No ☐ Yes
- Is the graph symmetric with respect to the y-axis?
☐ Yes ☐ No
- Is the graph symmetric with respect to the origin?
☐ No ☐ Yes

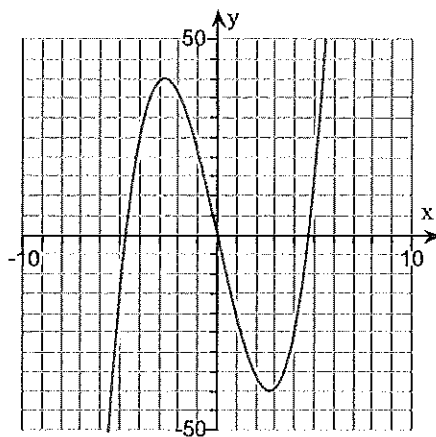


3b

2. Determine visually whether the graph is symmetric with respect to the x-axis, the y-axis, or the origin.
- Is the graph symmetric with respect to the x-axis?
☐ No ☐ Yes
- Is the graph symmetric with respect to the y-axis?
☐ No ☐ Yes
- Is the graph symmetric with respect to the origin?
☐ No ☐ Yes



3. Determine visually whether the graph is symmetric with respect to the x-axis, the y-axis, or the origin.
- Is the graph symmetric with respect to the x-axis?
☐ No ☐ Yes
- Is the graph symmetric with respect to the y-axis?
☐ No ☐ Yes
- Is the graph symmetric with respect to the origin?
☐ No ☐ Yes



4. Determine the symmetries (if any) of the graph of

the given relation.

$$y = |x| - 3$$

Choose the correct symmetry of the graph.

- ☐ A. It is symmetric to the x-axis.
- ☐ B. It is symmetric to the y-axis.
- ☐ C. It is symmetric to the origin.
- ☐ D. It is not symmetric to the x-axis, y-axis, or origin.

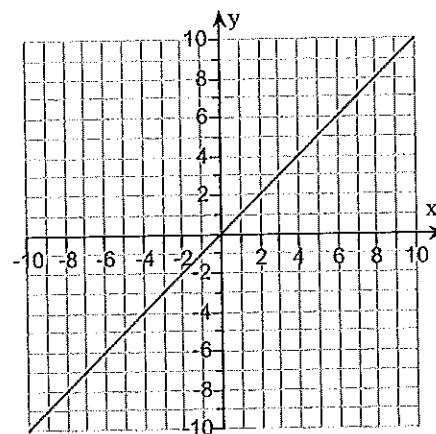
5.

Test algebraically whether the graph is symmetric with respect to the x-axis, the y-axis, or the origin.

$$3x - 3y = 0$$

This graph is

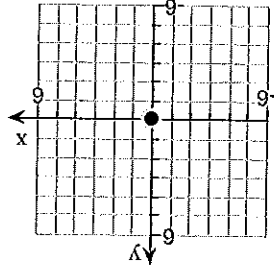
- ☐ A. symmetric to the origin.
- ☐ B. symmetric to the x-axis.
- ☐ C. symmetric to the y-axis.
- ☐ D. not symmetric to the x-axis, y-axis, or origin.



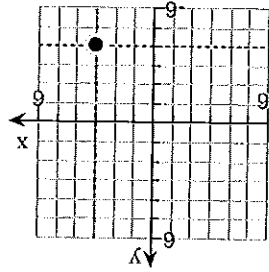
Plot the point $(3, -4)$. Then plot the point that is symmetric to $(3, -4)$ with respect to

- a) the x-axis,
b) the y-axis,
c) the origin.

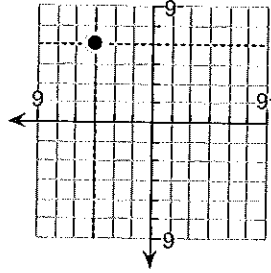
Plot the point $(3, -4)$.



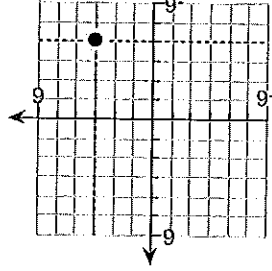
a) Plot the point symmetric to $(3, -4)$ with respect to the x-axis.



b) Plot the point symmetric to $(3, -4)$ with respect to the y-axis.



c) Plot the point symmetric to $(3, -4)$ with respect to the origin.

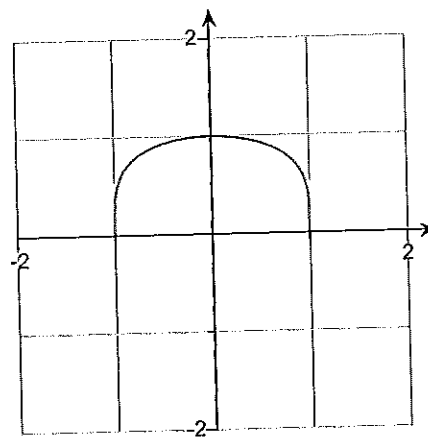


7.

Determine visually whether the function is even, odd, or neither even nor odd.

Is the function odd, even, or neither?

- ☐ A. Odd
☐ B. Even
☐ C. Neither

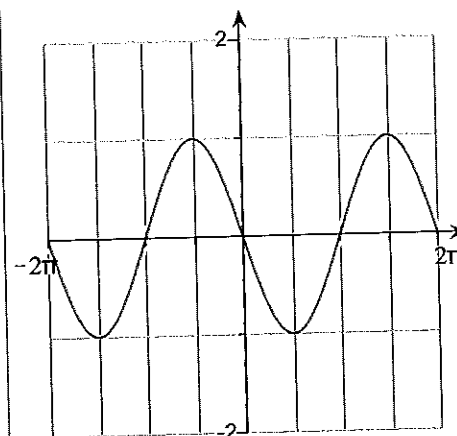


8.

Determine visually whether the function is even, odd, or neither even nor odd.

Is the function odd, even, or neither?

- ☐ A. Even
☐ B. Odd
☐ C. Neither



9.

Discuss the symmetry of the graph of the function, and determine whether the function is even, odd, or neither.

$$f(x) = 4x^8 + 3x^6$$

This graph is

- ☐ A. symmetric about the y-axis.
☐ B. not symmetric about either.
☐ C. symmetric about the x-axis.

This function is

- ☐ A. even.
☐ B. odd.
☐ C. neither.

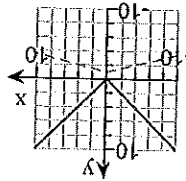
10.

Graph the function using transformations.

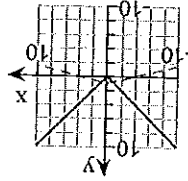
$$g(x) = -\frac{1}{4}|x| + 1$$

Each grid shows $f(x) = |x|$ in solid blue.

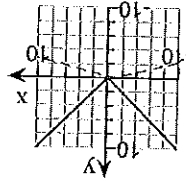
Which grid also shows, in dashed red, $g(x) = -\frac{1}{4}|x| + 1$?



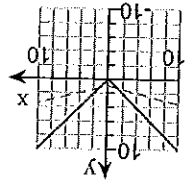
☐ A.



☐ B.



☐ C.



☐ D.

11.

The graph of $y = -\frac{1}{4}|x + 4| + 2$ can be obtained from the graph of $y = |x|$ by which transformations?

What is the horizontal shift?

- ☐ A. 2 units to the left
- ☐ B. 4 units to the right
- ☐ C. 2 units to the right
- ☐ D. 4 units to the left

By what factor is the graph stretched or shrunk vertically and how is it reflected?

- ☐ A. shrunk vertically by a factor of $\frac{1}{4}$; reflected over the x-axis
- ☐ B. stretched vertically by a factor of 4; reflected over the x-axis
- ☐ C. stretched vertically by a factor of 4; reflected over the y-axis
- ☐ D. shrunk vertically by a factor of $\frac{1}{4}$; reflected over the y-axis

What is the vertical shift?

- ☐ A. 2 units upward
- ☐ B. 2 units downward
- ☐ C. 4 units upward
- ☐ D. 4 units downward

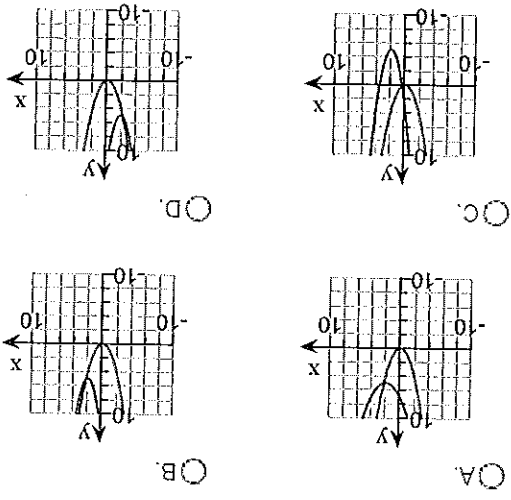
12.

Graph the function using transformations.

$$g(x) = 2(x - 2)^2 + 5$$

Each grid shows $f(x) = x^2$ in blue.

Which grid also shows $g(x) = 2(x - 2)^2 + 5$?



13.

Given that $f(x) = x^2 + 5$, match the function g with a transformation of f .

$$g(x) = (x + 5)^2 + 5$$

What is the transformation?

- ☐ A. $f(x) + 5$
- ☐ B. $f(x) - 5$
- ☐ C. $f(x + 5)$
- ☐ D. $f(x - 5)$
- ☐ E. $5f(x)$
- ☐ F. $f(5x)$

14.

Write an equation for a function that has a graph with the given characteristics.

The shape of $y = |x|$, but shifted left 4 units and up 6 units.

Which of the following is the equation of the function?

- ☐ A. $y = |x + 4| + 6$
- ☐ B. $y = |x - 4| - 6$
- ☐ C. $y = |x - 4| + 6$
- ☐ D. $y = |x + 4| - 6$

15.

Write an equation for a function that has a graph with the given characteristics.

The shape of $y = x^2$, but upside-down and shifted right 5 units and up 8 units.

Which of the following is the equation of the function?

☐ A. $y = -(x + 5)^2 - 8$

☐ B. $y = -(x - 5)^2 - 8$

☐ C. $y = -(x + 5)^2 + 8$

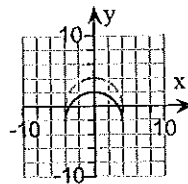
☐ D. $y = -(x - 5)^2 + 8$

16.

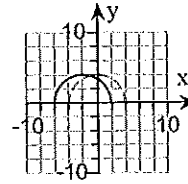
The graph of $y = f(x)$ is shown with dashed red lines. Graph $y = f(x) + 2$.

Choose the correct graph (in solid blue).

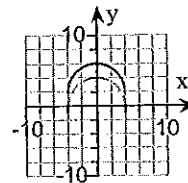
☐ A.



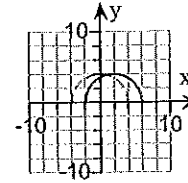
☐ B.



☐ C.

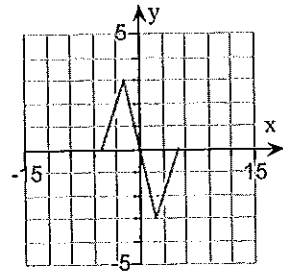


☐ D.



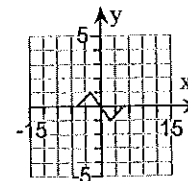
17.

The graph of the function f is given. Choose the graph which represents $g(x) = \frac{1}{3} f(x - 2)$.

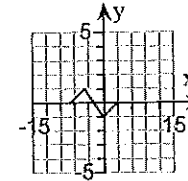


What is the graph of $g(x)$?

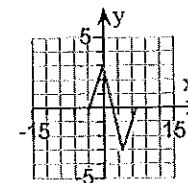
☐ A.



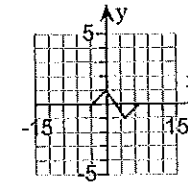
☐ B.



☐ C.



☐ D.



18. Find the variation constant and an equation of variation where y varies directly as x and y = 30 when x = 3.

The variation constant is $k = \square$.

The equation of variation is $y = \square$.

19. Find the variation constant and an equation of variation where y varies inversely as x and y = 4 when x = 2.

The variation constant is $\square$.

The equation of variation is $y = \square$.

20. The weight M of an object on the moon varies directly as its weight B on earth. A person who weighs 167.29 lb on earth weighs 28.44 lb on the moon. How much would a 248.82-lb person weigh on the moon?

A 248.82-lb person would weigh $\square$ lb on the moon. (Round to the nearest tenth.)

21. The maximum number of grams of fat (F) that should be in a diet varies directly as a person's weight (W). A person weighing 108 lb should have no more than 72 g of fat per day. What is the maximum daily fat intake for a person weighing 120 lb?

The maximum daily fat intake is $\square$ g.

22. The time t required to do a job varies inversely as the number of people working. It takes 6 hr for 3 cooks to prepare the food for a wedding rehearsal dinner. How long will it take 8 cooks to prepare the dinner?

It takes 8 cooks approximately $\square$ hr to prepare the dinner.

(Round to the nearest tenth.)

23. Hooke's Law. The distance d when a spring is stretched by a hanging object varies directly as the weight w of the object. If the distance is 48 cm when the weight is 4 kg, what is the distance when the weight is 5 kg?

The distance is $\square$ cm.

(Type an integer or decimal rounded to three decimal places as needed.)

24. Find an equation of variation where y varies directly as the square of x, and where y = 0.28 when x = 0.1.

The equation of variation is $y = \square$. (Simplify your answer.)

25.

The stopping distance d of a car after the brakes are applied varies directly as the square of the speed r . If a car travelling 50 mph can stop in 250 ft, how many feet will it take the same car to stop when it is travelling 30 mph?

It will take the same car to stop in ft.

