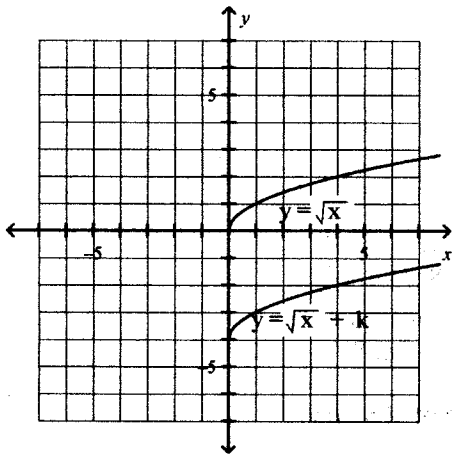
NAME: _____ BLOCK: ____ DATE: _____

PMATH 12 - CHAPTER 3 - PRETEST signature

Multiple Choice - PART 1 - NON-CALCULATOR - 10 MINUTES (#1-6)
*CIRCLE the choice that **best** completes the statement or answers the question.*

1. The graph of $y = \sqrt{x} + k$ is the image of the graph of $y = \sqrt{x}$ after a single translation. What is the value of k?

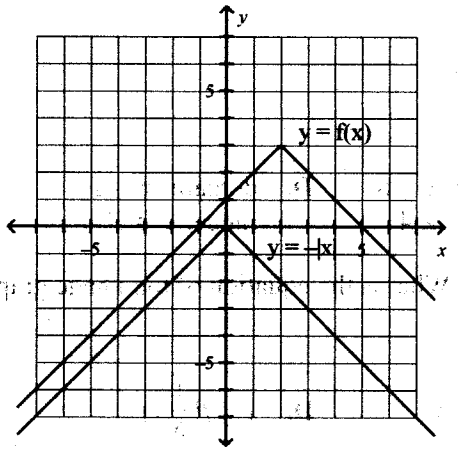


A. 5 **B.** –4 **C.** 4 **D.** –5

2. The graph of $y = f(x)$ is translated 4 units down. What is the equation of the translation image in terms of the function f?

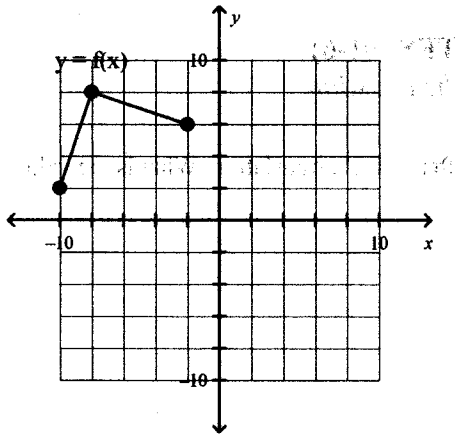
A. $y = f(x+4)$ **B.** $y+4 = f(x)$ **C.** $y-4 = f(x)$ **D.** $y = f(x-4)$

3. The graph of $y = f(x)$ is the image of the graph of $y = -|x|$ after a horizontal and vertical translation. What is an equation of the image graph?



A. $y-3 = -|x|$ **B.** $y-3 = -|x-2|$ **C.** $y-3 = |x+2|$ **D.** $y-2 = -|x-3|$

4. Here is the graph of $y = f(x)$. What are the domain and range of its image after a reflection in the x-axis?



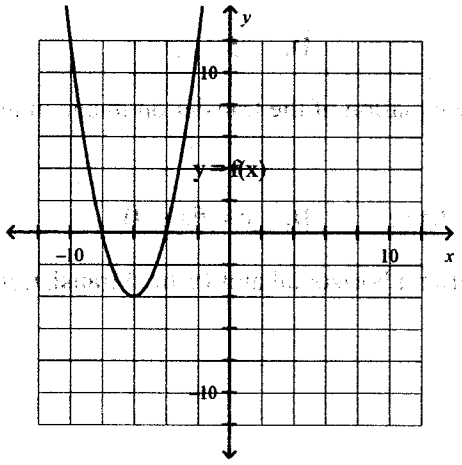
A. domain: $-10 \le x \le -2$
range: $-8 \le y \le -2$

B. domain: $2 \le x \le 10$
range: $2 \le y \le 8$

C. domain: $2 \le x \le 10$
range: $-8 \le y \le -2$

D. domain: $-10 \le x \le -2$
range: $2 \le y \le 8$

5. Here is the graph of $y = f(x)$. What are the domain and range of $y = -f(x)$?



A. domain: $x \in \mathbb{R}$
range: $y \le -4$

B. domain: $x \in \mathbb{R}$
range: $y \le 4$

C. domain: $x \le 6$
range: $y \ge 4$

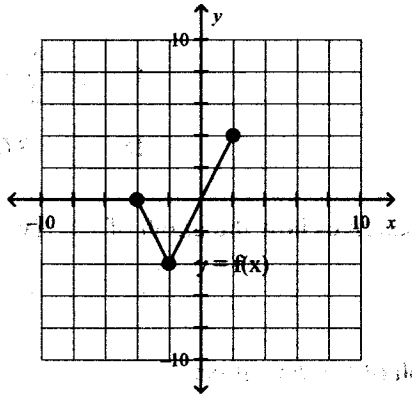
D. domain: $x \in \mathbb{R}$
range: $y \in \mathbb{R}$

6. The graph of $y = f(x)$ is stretched vertically by a factor of 6. What is the equation of the image graph in terms of the function f?

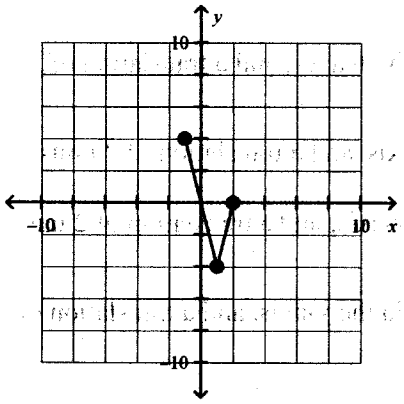
A. $y = 6f(x)$ **B.** $y = \frac{1}{6}f(x)$ **C.** $y = f(6x)$ **D.** $y = f(\frac{1}{6}x)$

MULTIPLE CHOICE - PART 2 - CALCULATOR may be used after 10 minutes

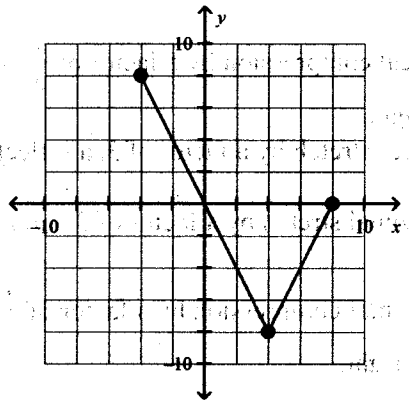
7. For the graph of $y = f(x)$ shown below, which graph represents $y = f(-2x)$?



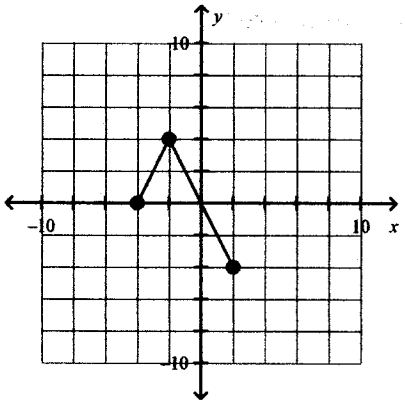
A.



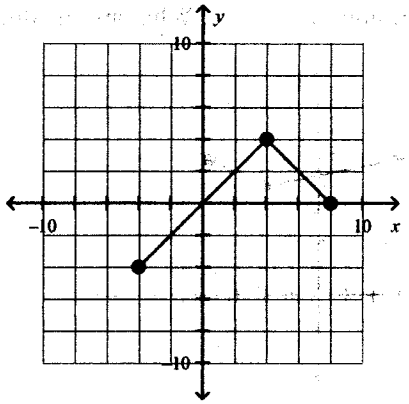
C.



B.



D.



8. The point A (16,64) lies on the graph of $y = \sqrt{x^3}$. What are the coordinates of its image A′ on the graph of $y = \frac{1}{4}\sqrt{(2x)^3}$?

A. (8,16)
B. (8,32)
C. (4,16)
D. Not enough information is given.

9. The graph of $y = f(x)$ is horizontally compressed by a factor of $\frac{1}{3}$, vertically compressed by a factor of $\frac{1}{2}$, and reflected in the y-axis. What is an equation of the image graph in terms of the function f?

A. $y = \frac{1}{2}f(-3x)$

B. $y - 3 = f(x - \frac{1}{2})$

C. $y - \frac{1}{2} = f(x - 3)$

D. $y = -3f(\frac{1}{2}x)$

10. Which statement below describes how the graph of $y = f(x)$ has been transformed to get the graph of $y = f(-\frac{1}{3}(x - 2))$?

It is the image of the graph of $y = f(x)$ after:

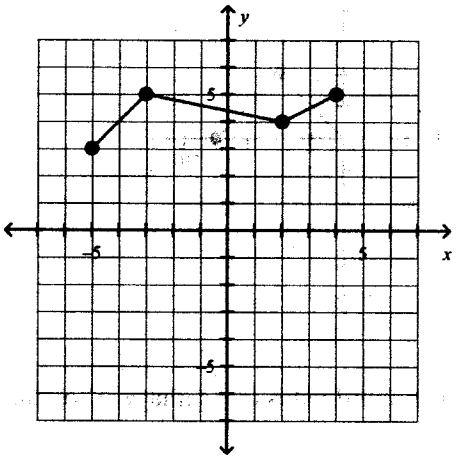
A. a vertical compression by a factor of $\frac{1}{3}$, a reflection in both axes, and a translation of 2 units right.

B. a vertical stretch by a factor of 3, a reflection in the y-axis, and a translation of 2 units down.

C. a horizontal stretch by a factor of 3, a reflection in the y-axis, and a translation of 2 units right.

D. a horizontal compression by a factor of $\frac{1}{3}$, a reflection in the y-axis, and a translation of 2 units right.

11. Here is the graph of $y = f(x)$. What are the domain and range of its inverse?



A. Domain: $-5 \le x \le 4$
Range: $-5 \le y \le -3$

B. Domain: $3 \le x \le 5$
Range: $-5 \le y \le 4$

C. Domain: $-5 \le x \le 4$
Range: $3 \le y \le 5$

D. Domain: $3 \le x \le 5$
Range: $-4 \le y \le 5$

12. Determine an equation of the inverse of the function $y = -6x - 5$.

A. $y = \frac{x-6}{-5}$

B. $y = \frac{x-5}{-6}$

C. $y = -6x + 5$

D. $y = \frac{x+5}{-6}$

13. The point A(–5,–3) lies on the graph of $y = f(x)$. What are the coordinates of its image A′ on the graph of $y = f^{-1}(x)$?

A. (3,5)

B. (5,3)

C. (–3,–5)

D. (–5,–3)

Short Answer - Show your work

1. The graph of $y = f(x)$ has x-intercepts 2 and 5, and y-intercept –2. After a reflection in the y-axis, what are the x-intercepts and y-intercept of the image graph?

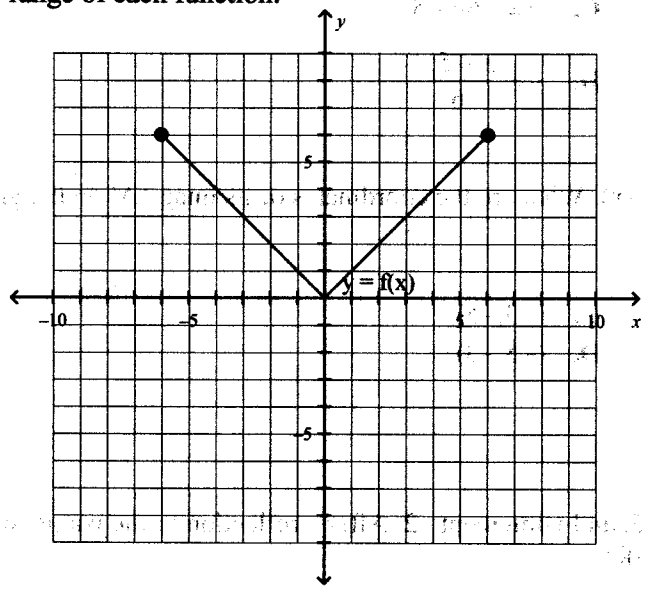
2. The graph of $y = f(x)$ is compressed horizontally by a factor of $\frac{4}{9}$, stretched vertically by a factor of $\frac{9}{8}$, and reflected in the y-axis. What is the equation of the image graph in terms of the function f?

3. The graph of $y = \sqrt{x}$ is vertically compressed by a factor of $\frac{1}{5}$, horizontally compressed by a factor of $\frac{1}{3}$, reflected in both axes, then translated 2 units left and 4 units up. Write an equation of the image graph in terms of x.

4. Determine an equation of the inverse of the function $y = -5x^2 + 4$.

Problem - Show your work

1. Here is the graph of $y = f(x)$. On the same grid, sketch the graph of $y + 3 = f(x - 3)$. State the domain and range of each function.



2. The graph of $y = g(x)$ is the image of the graph of $y = f(x)$ after a combination of transformations. Corresponding points are labelled. What is an equation of the image graph in terms of the function f?