

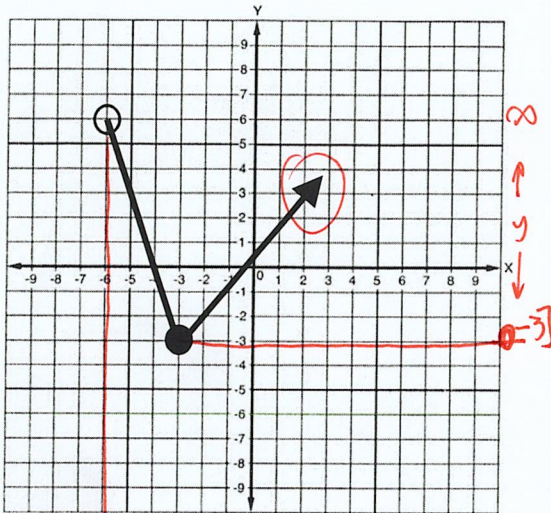
Honors Algebra 2
Chapter 1 Test B

Name Key
Period _____

Determine if the graph is a function, then state the domain and range in interval notation.

1.

93%

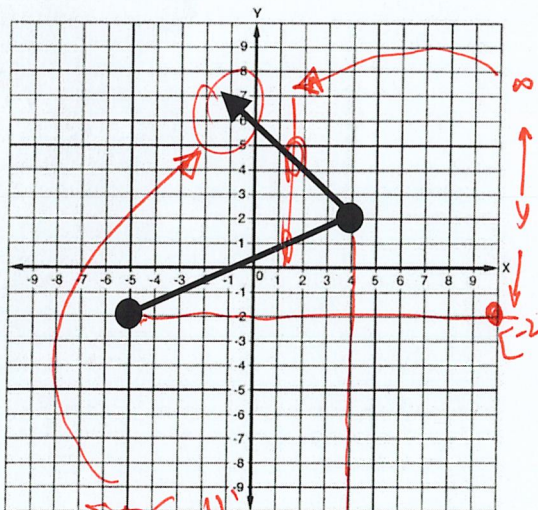


(1) $(-6 \leftarrow x \rightarrow \infty)$

Function Yes or No	<u>Yes</u>	(1)
Domain	<u>$(-6, \infty)$</u>	(2)
Range	<u>$[-3, \infty)$</u>	(3)

(2)

86%



No!!!
 $-\infty \leftarrow x \rightarrow 4]$

Function Yes or No	<u>No</u>	(1)
Domain	<u>$(-\infty, 4]$</u>	(2)
Range	<u>$[-2, \infty)$</u>	(3)

Solve the system of equations using either elimination or substitution. Be sure to show your work for credit. Remember to write you answer as a coordinate point.

3. $x = 16 - 4y$
 $3x + 4y = 8$ → $3(16 - 4y) + 4y = 8$
 $48 - 12y + 4y = 8$
 -48 -48

 $-8y = -40$
 $y = 5$
 $x = 16 - 4(5)$
 $= 16 - 20$
 $x = -4$

$(-4, 5)$ (4)

4. $-2x - 5y = 9$
 $3x + 11y = 4$

$-6x - 15y = 27$
 $6x + 22y = 8$

 $7y = 35$
 $y = 5$

$-2x - 5(5) = 9$
 $-2x - 25 = 9$
 $+25 +25$

 $-2x = 34$
 $x = -17$

$(-17, 5)$ (4)

Write a function $g(x)$ whose graph represents the indicated transformation of $f(x) = |x + 1|$

5. Reflect over the y-axis, translate 3 units left.
 $f(-x)$ | $f(x+3)$
 $(1) = | -x + 1 |$
 $(2) = | -(x+3) + 1 | = | -x - 3 + 1 |$
 $g(x) = | -x - 2 |$ (3)
6. Horizontal stretch by a factor of 3, translate 2 units up.
 $a = \frac{1}{3}$ | $f(\frac{1}{3}x)$ | $f(x) + 2$
 $(1) = | \frac{1}{3}x + 1 |$
 $g(x) = | \frac{1}{3}x + 1 | + 2$ (4)
7. Vertical shrink of $\frac{1}{2}$, translate 2 units right, 6 units down.
 $a = \frac{1}{2}$ | $f(x+2)$ | $f(x) - 6$
 $\frac{1}{2}f(x)$
 $(1) = \frac{1}{2} | x + 1 |$
 $(2) = \frac{1}{2} | (x-2) + 1 | = \frac{1}{2} | x - 1 |$
 $g(x) = \frac{1}{2} | x - 1 | - 6$ (19)

For the following word problems, be sure to define your variables, show your work and answer in a complete sentence.

- 94% 8. There are three options for fans purchasing a band's new release CD. They can purchase the CD, a premium CD bundle, or a deluxe CD bundle. A CD costs \$12. A deluxe CD bundle costs the same as 3 CDs and one premium CD bundle. The band sells 375 CDs, 115 premium CD bundles and 45 deluxe CD bundles for a total of \$10,920. Find the price of each option.

$$c = \text{cost CD} \quad (1)$$

$$p = \text{cost premium bundle}$$

$$d = \text{cost deluxe bundle}$$

$$\rightarrow c = 12$$

$$d = 3c + p = 3(12) + p = 36 + p \quad (3)$$

$$375c + 115p + 45d = 10920$$

$$375(12) + 115p + 45(36 + p) = 10920$$

$$\begin{array}{r} 4500 + 115p + 1620 + 45p = 10920 \\ -4500 \quad \quad \quad -1620 \quad \quad \quad -4500 \quad \quad \quad -1620 \\ \hline 160p = 4800 \end{array} \quad (4)$$

$$160p = 4800$$

$$\rightarrow p = 30$$

$$\rightarrow d = 36 + 30 = 66$$

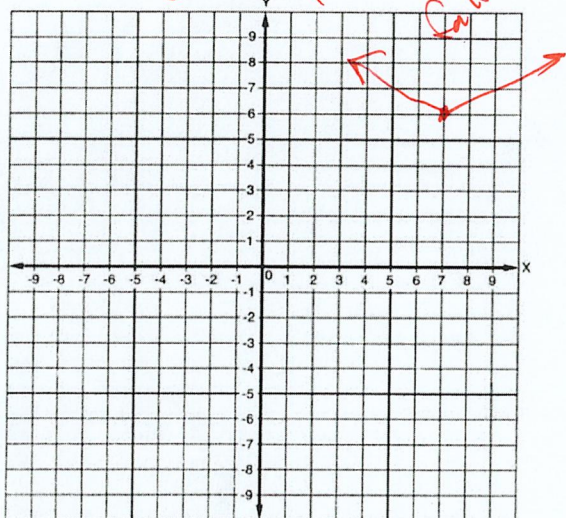
the cost of a CD is \$12,
the cost of a premium bundle is \$30
and cost of a deluxe bundle is \$66

74% 9. Given $f(x) = |x - 3| + 2$, find an equation $g(x)$ that reflects over the y-axis, moves 4 right and 3 up. $f(x) + 3$

① = $| -x - 3 | + 2$
 ② = $| -(x-4) - 3 | + 2$
 = $| -x + 4 - 3 | + 2$
 = $| -x + 1 | + 2$
 ③ = $| -x + 1 | + 2 + 3 = | -x + 1 | + 5$ or $| x - 1 | + 5$
 ④ = $| x - 7 | - 2$
 ⑤ = $| x - 7 | - 2 + 3 = | x - 7 | + 1$
 $g(x) = | -x - 7 | + 1$ ✓

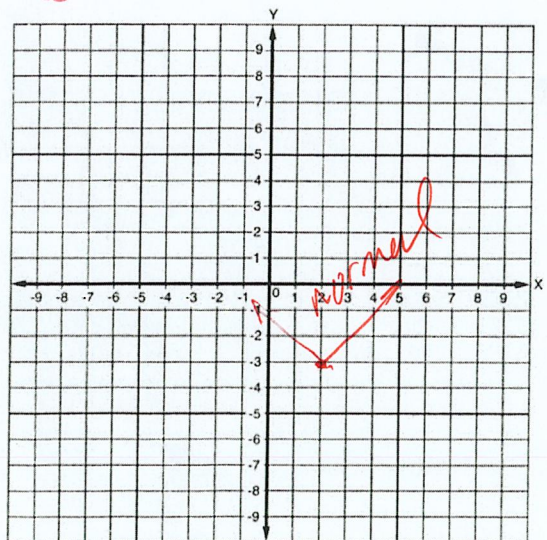
Describe how the graph of $f(x)$ is transformed from its parent function. Use the correct order. Then graph $f(x)$.

93% 10. $f(x) = \frac{1}{2}|x - 7| + 6$



- ① outside, so factor is on y → vert stretch factor $\frac{1}{2}$ or horiz stretch
- ② Right 7
- ③ up 6

86% 11. $f(x) = |-x + 2| - 3$



$f(x) = |-x + 2| - 3$
 $= | -(x-2) | - 3$
 $= (|x-2|) - 3$
 $= |x-2| - 3$

- ① Right 2
- ③ down 3