

SOLUTIONS

Name: _____

Period: _____

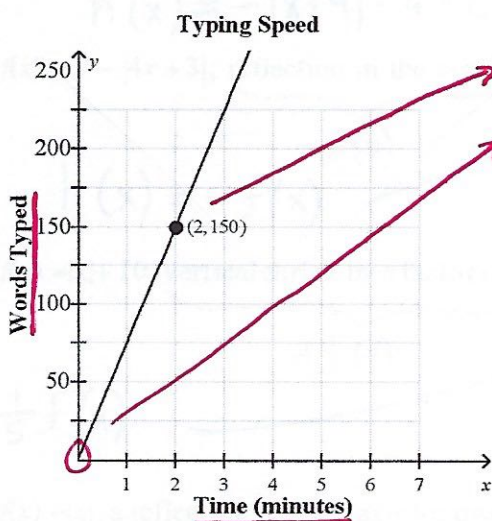
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Algebra 2 Quiz 1.1-1.4

Write an equation of the line and interpret the slope.

1.



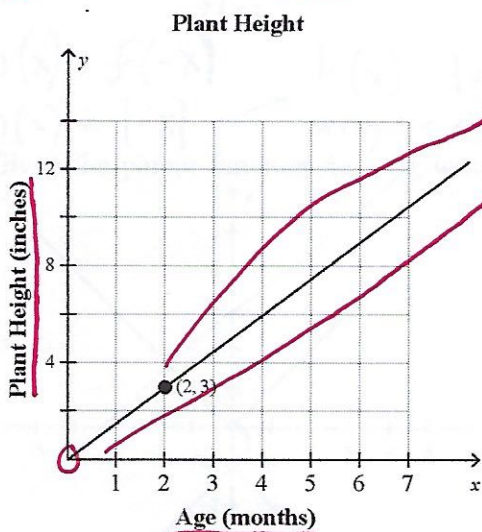
$$m = \frac{0 - 150}{0 - 2} = \frac{-150}{-2} = 75$$

$b = 0$, since y-intercept is @ origin

$$y = mx + b$$

$y = 75x$	Slope:
75 words typed per minute	

2.



$$m = \frac{0 - 3}{0 - 2} = \frac{-3}{-2} = \frac{3}{2}$$

$b = 0$, since y-intercept is @ origin

$$y = mx + b$$

$y = \frac{3}{2}x$	Slope:
Plant grows $\frac{3}{2}$ inches per month	

Write a function g whose graph represents the indicated transformation of the graph of f .

3. $f(x) = 2|x + 9| - 9$; translation 4 units right

$$h = 4$$

$$h(x) = f(x - h)$$

$$h(x) = f(x - 4)$$

*remember, we are replacing "x" with (x-h)

$$h(x) = 2|(x-4)+9| - 9$$

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

4. $f(x) = -|x+9| - 4$; translation 2 units up

$h(x) = f(x) + k$

$h(x) = -|x+9| - 4 + 2$

$$h(x) = -|x+9| - 2$$

5. $f(x) = 7 - |4x+3|$; reflection in the x-axis

$h(x) = -f(x)$

$h(x) = -(7 - |4x+3|)$

$$h(x) = -7 + |4x+3|$$

6. $f(x) = |x| + 10$; vertical shrink by a factor of $\frac{1}{5}$

$$h(x) = \frac{1}{5}f(x)$$

$$a \cdot f(x)$$

$$h(x) = \frac{1}{5}(|x| + 10)$$

$$h(x) = \frac{1}{5}|x| + 2$$

7. $f(x) = |x|$; a reflection in the y-axis followed by a translation 3 units to the left

$h(x) = f(-x)$

$h(x) = |-x|$

$h(x) = |x|$

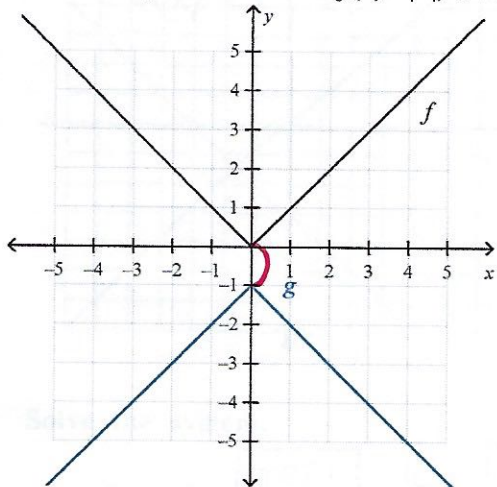
*negative sign disappears with abs. value

$$h = -3$$

$$g(x) = h(x-h)$$

$$g(x) = |x+3|$$

8. Given the parent function $f(x) = |x|$, write a function g whose graph is shown below.



$k = -1$

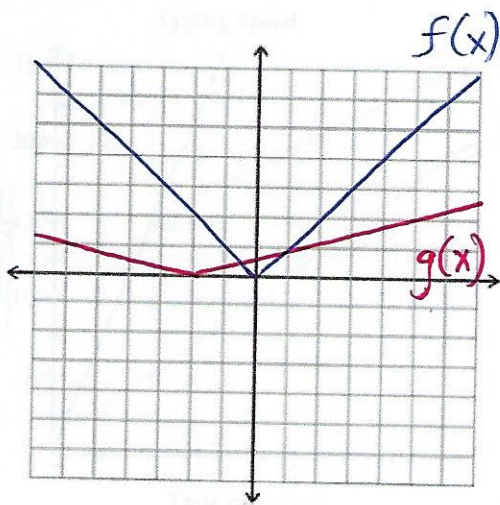
"g" is a vertical reflection of "f" about the x-axis

$$g(x) = -f(x) + k$$

$$g(x) = -|x| - 1$$

Graph the function and its parent function. Then describe the transformation.

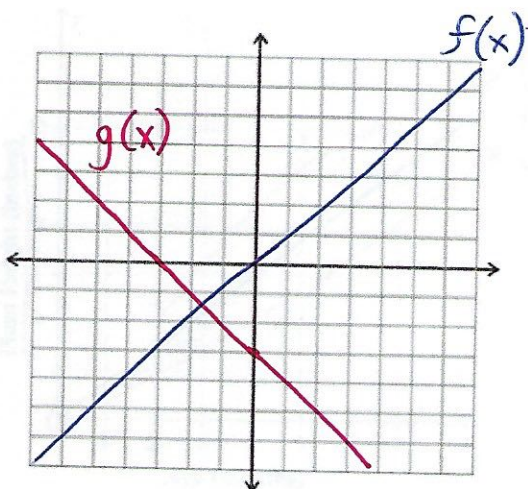
9. $g(x) = \frac{1}{4}|x+2|$



• $a = \frac{1}{4} \rightarrow$ V. Shrink by $\frac{1}{4}$

• $h = -2 \rightarrow$ Shift left by 2

10. $g(x) = -x - 3$



• $a = -1 \rightarrow$ Reflection about x-axis
(or y-axis, in this example.)
Both work!

• $k = -3 \rightarrow$ Shift down 3 units

Solve the system.

11. $x - y - 2z = -6$ **STEP 1** (Eq 1) $x - y - 2z = -6$
 $3x + 2y = -25$ -2 (Eq 3) $8x - 2y + 2z = -24$
 $-4x + y - z = 12$

$$\frac{9x - 3y}{3} = \frac{-36}{3}$$

(New Eq. 1) $3x - y = -10$

★ Since Eq. 2 has no "z" value, we already have two equations with two variables and can move to Step 2

STEP 3 Plug "x" and "y" into original equations & find "z"

STEP 2

2 (New Eq 1) $6x - 2y = -20$
 (Eq 2) $3x + 2y = -25$

$$9x = -45 \rightarrow x = -5$$

Plug $x = -5$ back in to Eq. 2 to find y

$3(-5) + 2y = -25$
 $-15 + 2y = -25$
 $2y = -10$
 $y = -5$

$(-5) + (-5) - 2z = -6$
 $-2z = -6$
 $z = 3$

$(-5, -5, 3)$

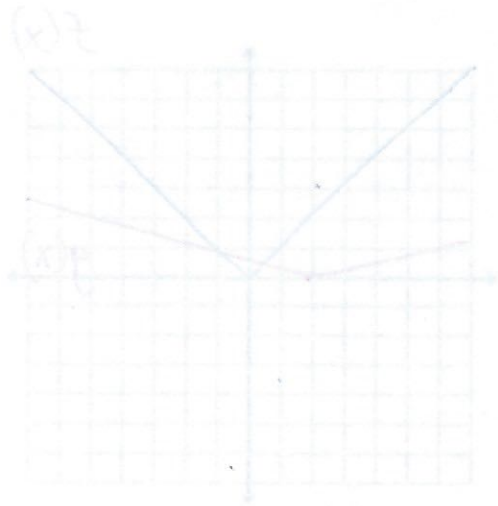
12 "C"

Graph the function and its parent function. Then describe the transformation.

$g(x) = \frac{1}{4}|x+2|$

Stretch by 1/4 $\rightarrow a = \frac{1}{4}$

Shift left by 2 $\rightarrow h = -2$

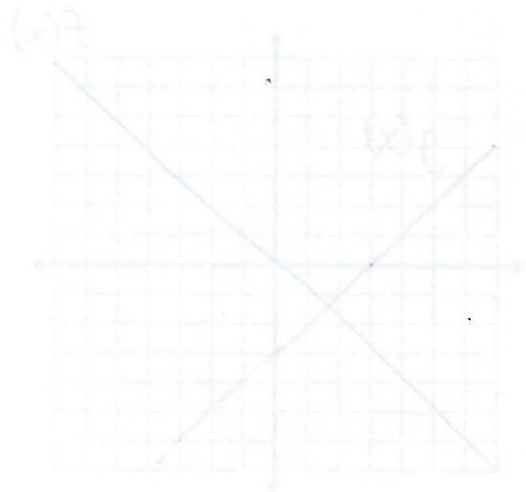


10 $g(x) = -x - 3$

Reflection about x-axis $\rightarrow a = -1$

(Both work! in this graph)

Shift down 3 units $\rightarrow k = -3$



Solve the system.

STEP 1

(Eq 1) $x - y - 2z = -6$

(Eq 2) $2x - 3y + 5z = -24$

$4x - 3y = -30$

(New Eq 1) $2x - y = -10$

$x + 2y - 2z = 6$

$3x + 2y - 2z = 22$

$-2x + 2y - 2z = 12$

STEP 2

(New Eq 1) $6x - 2y = 20$

(Eq 2) $3x + 2y = 22$

$9x = 42$

$x = 2$

$2(-2) - 2y = -12$

$-4 - 2y = -12$

$-2y = -8$

$y = 4$

* Since Eq 2 has no 'z' value, we already have two equations with two variables and can solve for 'y'.

STEP 3

Substitute x=2 and y=4 into Eq 1

$2(2) - 2(4) - 2z = -10$

$4 - 8 - 2z = -10$

$-4 - 2z = -10$

$-2z = -6$

$z = 3$

$(2, 4, 3)$