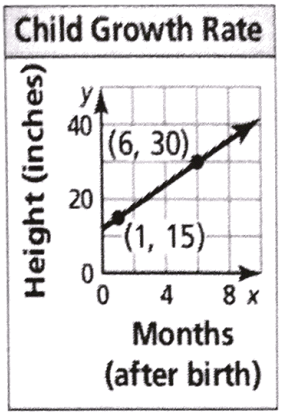
Algebra 2: Ch. 1 Review Worksheet Name Key Date _____ Per ___

#1-2: Write an equation of the line and interpret the slope.

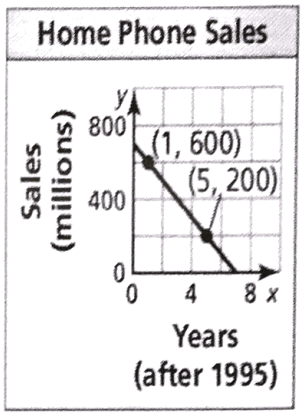
1.



$y = 3x + 12$

The child's height increases by 3 inches each month.

2.



$y = -100x + 700$

The number of home phones sold decreases by 100 million each year.

#3-4: Solve the system. Check your solution, if possible.

3. $3x - 3y + z = 10$
$3x + 2y - 3z = -2$
$-3x + z = -2$

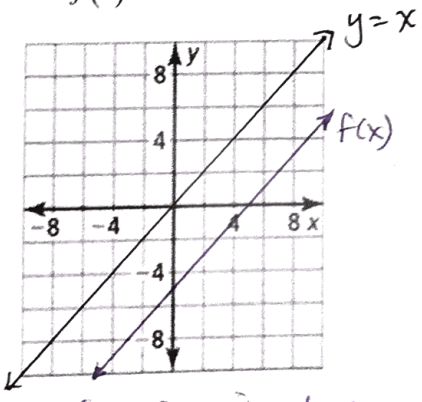
$(0, -4, -2)$

4. $-x - y - 2z = 9$
$-2x + 2y - 2z = -8$
$x - y + z = 5$

No solution

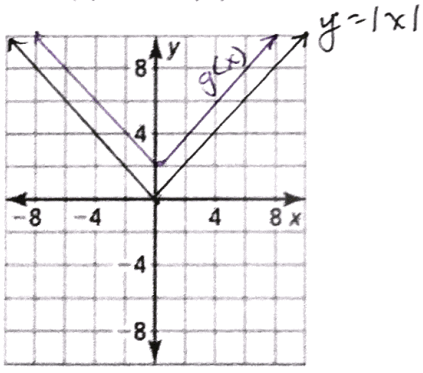
#5-7: Graph the function and its parent function. Then describe the transformation.

5. $f(x) = x - 5$



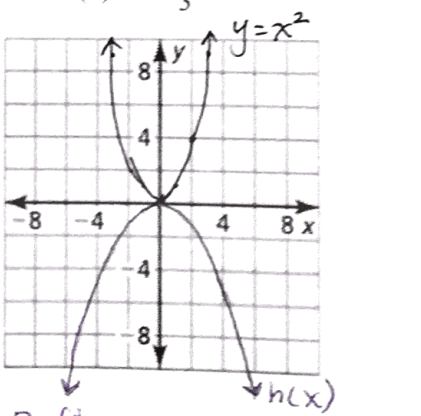
Shift 5 units down
OR
shift 5 units right

6. $g(x) = 2 + |x|$



Shift 2 units up

7. $h(x) = -\frac{1}{3}x^2$



Reflect across x-axis, vertical shrink by a factor of $\frac{1}{3}$.

#8-12: Write a function *g* whose graph represents the indicated transformation of the graph *f*.

8. $f(x) = -3|x + 1| - 4$; translation 3 units up

$g(x) = -3|x+1| - 1$

9. $f(x) = \frac{2}{3}x^2 + 2$; vertical stretch by a factor of 3

$g(x) = 2x^2 + 6$

10. Let the graph of g be a vertical shrink by a factor of $\frac{1}{2}$, followed by a translation 3 units down of the graph of $f(x) = |x|$. Write a rule for g.

$g(x) = \frac{1}{2}|x| - 3$

11. Let the graph of g be a translation 2 units left, followed by a vertical stretch by factor of 2 of the graph of $f(x) = |x|$. Write a rule for g.

$g(x) = 2|x+2|$

12. Let the graph of g be a reflection in the x-axis, followed by a translation 4 units down of the graph of $f(x) = \sqrt{x}$ Write a rule for g.

$g(x) = -\sqrt{x} - 4$

13. You design a computer game. Your revenue for x downloads is given by $f(x) = 2x$. Your profit is \$50 less than 90% of the revenue for x downloads. Describe how to transform the graph of f to model the profit. What is your profit for 100 downloads?

$p(x) = 0.9f(x) - 50$

The profit is \$130 for 100 downloads.