

Honors Algebra 2: Chapter 1 and 2a Review

Vocabulary: Be able to thoroughly explain each of the following terms within the context of this chapter:

Parent Function
Transformation
Compression
Domain

Stretch
Translation
Reflection
Range

Line of Best Fit
Regression

Correlation
Correlation Coefficient

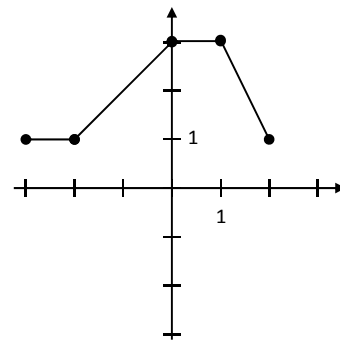
Vertex Form of a Quadratic Function
Axis of Symmetry

Standard Form of a Quadratic Equation
Maximum or Minimum Value of a Quadratic

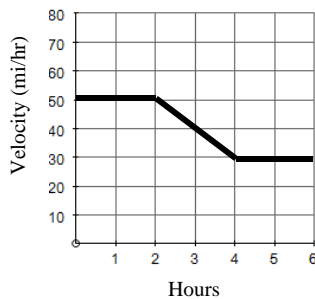
NO CALCULATOR ALLOWED

1. Perform the given translation to the graph shown.

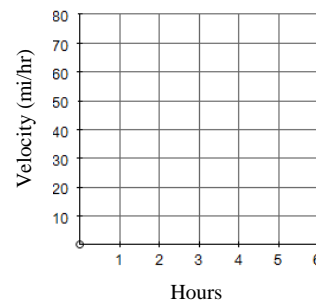
- a) 5 units left, 4 units down
- b) Reflection across the x -axis
- c) Horizontal compression by a factor of $\frac{1}{3}$



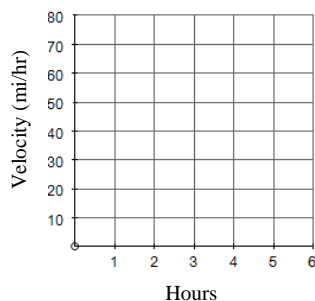
2. The following graph shows the velocity of a car over a 6 hour period. **Sketch** a new graph to represent each situation below and **identify** the transformation of the original graph that it represents.



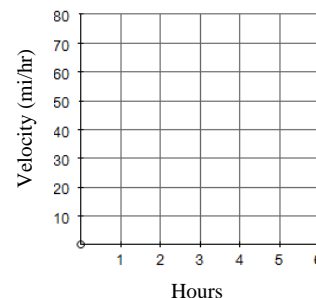
a) The velocity is increased by 15 mi/hr.



b) The velocity is increased by 30%



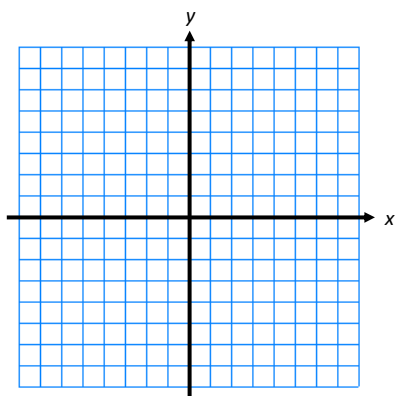
c) The time is decreased by half.



3. **Identify** the parent function for $g(x)$ from each equation below. **Then**, describe what transformation of the original function it represents. Graph $g(x)$ and give the domain and range.

a) $g(x) = -2|x-1| + 3$

Transformation:

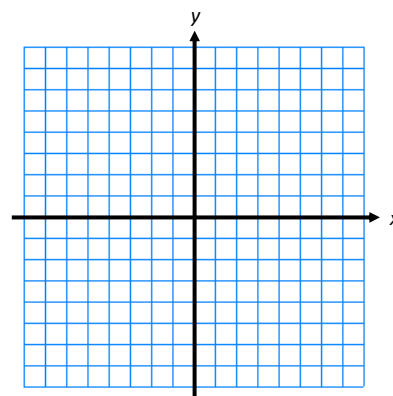


Domain:

Range:

b) $g(x) = 3(x+2)^2 - 6$

Transformation:

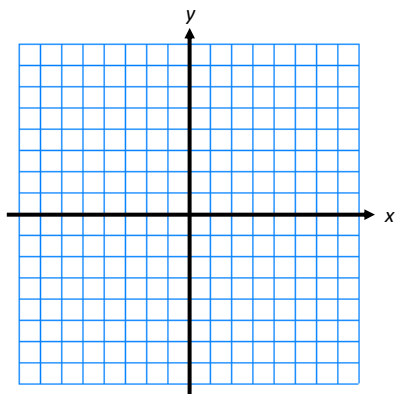


Domain:

Range:

c) $g(x) = -x^2 + 4$

Transformation:

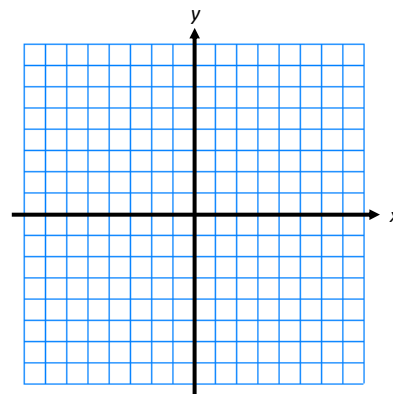


Domain:

Range:

d) $g(x) = |2(x+3)| - 1$

Transformation:



Domain:

Range:

4. Let $g(x)$ be the indicated transformations of $f(x) = |x|$. Write the equation of $g(x)$.

a) Reflection across the x -axis, vertical stretch by a factor of 9, horizontal translation 5 units left.

b) A Horizontal stretch by a factor of $\frac{5}{3}$, vertical stretch by a factor of 3, right 7 and up 19.

5. Let $k(x)$ be the indicated transformations of $h(x) = x^2$. Write the equation for $k(x)$.

a) Horizontal stretch by a factor of $\frac{4}{3}$, vertical compression by a factor of $\frac{2}{5}$, and a vertical translation 8 up.

b) Horizontal compression by a factor of $\frac{7}{10}$, a vertical stretch by a factor of 8, 14 down, and 12 right.

6. Consider the function $g(x) = -\frac{1}{3}(x-5)^2 + 8$

a) What is the line of symmetry for $g(x)$?

b) What is the vertex of $g(x)$.

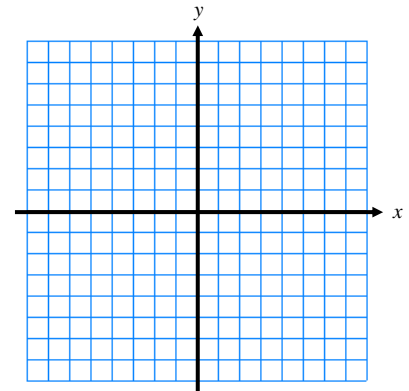
c) Does $g(x)$ open up or down? Explain.

d) Graph $g(x)$

e) Does $g(x)$ have a maximum or a minimum? Explain.

f) What is the maximum (or minimum) of $g(x)$.

g) What is the domain and range of $g(x)$?



7. Consider the function $h(x) = 2x^2 + 12x + 11$.

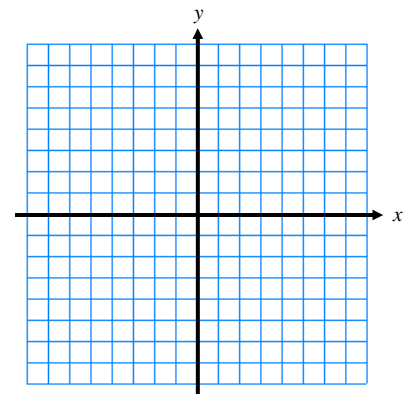
a) Find the line of symmetry

b) Find the vertex

c) Find the y-intercept

d) Graph the function including at least 3 points.

e) What is the domain and range of $h(x)$?



For questions 8 – 10, identify the parent function equation and the transformation(s).

8. $g(x) = (x+3)^3$

9. $h(x) = \sqrt{x-4}$

10. $k(x) = x^2 + 3$

For questions 11 and 12, identify the parent function that best approximates the data set.

11.

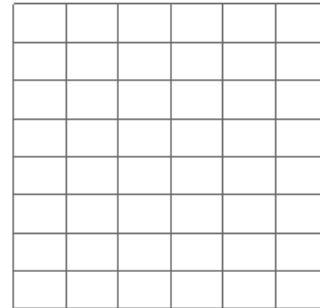
x	-2	-1	0	1	2
y	-4	-0.5	0	0.5	4

12.

x	1	3	5	7	9
y	16	4	0	4	16

13. Graph the relationship from year to sales in millions of dollars and identify which parent function best describes it. Then use the graph to estimate when cumulative sales reached \$10 million.

Year	1	2	3	4	5
Sales (million \$)	0.6	1.8	4.2	7.8	12.6



CALCULATOR ALLOWED

14. Consider the function $g(x) = -0.28x^2 + 84x + 5$.

- a) Does this function have a maximum or a minimum? Explain.
- b) Find the maximum (or minimum) of the function.
- c) What is the domain and range of this function?

15. If the points in a scatterplot have positive correlation, then the r -value is _____.

16. If the points in a scatterplot have negative correlation, then the r -value is _____.

17. If the equation of the line of best fit is $y = 7.013 - 0.12x$, which of the following could be the r -value?

- A) 1.08
- B) 0.76
- C) -0.89
- D) -1.35

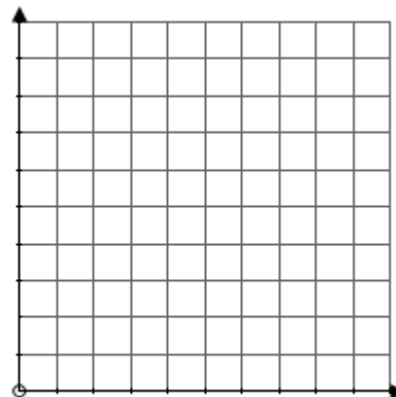
18. The table shows the price of a technology stock over 5 days.

Day	1	2	3	4	5
Price (\$)	8.30	8.60	8.55	8.90	9.30

a) Make a scatterplot of the data.

b) Find the line of best fit for the data.

c) Find the correlation coefficient.



d) What does the slope of the line you found in part *b* represent in the context of this problem?

e) Using your equation from part *b*, predict the price of the technology stock in two weeks.
How accurate do you think your prediction is?

f) Using your equation from part *b*, predict the day the price will hit \$25.
How accurate do you think your prediction is?

[Optional] Need More Practice? ... Try the following from your textbook ...

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