

Chapter 1 Test ~ Algebra 2 Standard			
1.1 (5 MC questions) <ul style="list-style-type: none"> Graph a parent function and its transformation From an equation, determine if it is a linear relationship Describe transformations from parent to child function Find slope of a line from two points From graph, determine to what function family it belongs Apply 	1.2 (5 MC questions) <ul style="list-style-type: none"> Transform a function Write a new function with a given transformation Understand & be able to translate a function left or right, up or down, reflect in x-axis (vertically) and vertically stretch or shrink Apply 	1.3 (5 MC questions) <ul style="list-style-type: none"> Given two points or the slope and a point, write an equation for a line in slope-intercept form OR point-slope form Understand and be able to identify & describe correlation From a scatter plot, be able to draw a line of best fit and find its equation Apply 	1.4 (5 MC questions) <ul style="list-style-type: none"> Understand how planes can intersect and what that means about the number of solutions to the system Solve a 3 variable system From a diagram of 3 planes, describe the number of solutions Write a system in three variables from a word problem Apply

For ALL sections, review homework, quizzes, practice worksheets, notes, fold-its.

You can find extra practice in MANY places!

Big Ideas Website and Big Ideas Textbook (pages 38-43)

Choose what YOU most need to review. ASK QUESTIONS!

BIG HINT... MAKE SURE YOU HAVE YOUR FOLD-ITS WITH YOU!

Test is FRIDAY, OCTOBER 4

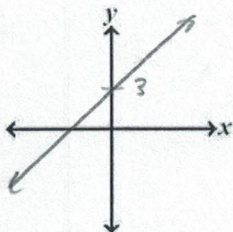
1.1 Parent Functions and Transformations (pp. 3-10)

For each of the following #1-6:

- Tell which family each belongs to and why.
- Describe the transformation from its parent function.
- Draw a rough sketch on a coordinate graph

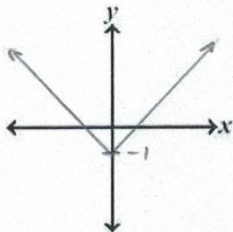
1. $f(x) = x + 3$

LINEAR - x
TRANSLATE $\uparrow 3$



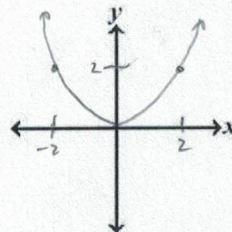
2. $g(x) = |x| - 1$

ABSOLUTE VALUE - $|x|$
TRANSLATE $\downarrow 1$



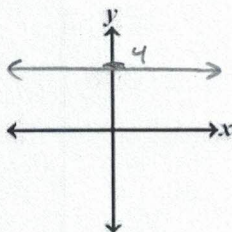
3. $h(x) = \frac{1}{2}x^2$

QUADRATIC - x^2
VERTICAL SHRINK $\times \frac{1}{2}$ (WIDER)



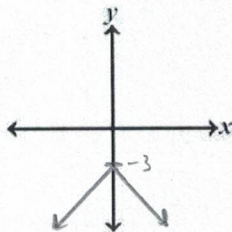
4. $h(x) = 4$

CONSTANT - NO x
TRANSLATE $\uparrow 4$



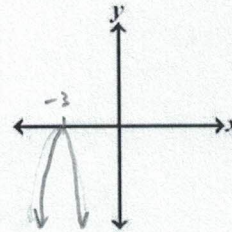
5. $f(x) = -|x| - 3$

ABSOLUTE VALUE - $|x|$
VERTICAL REFLECTION
TRANSLATE $\downarrow 3$



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

QUADRATIC - x^2
TRANSLATE $\leftarrow 3$
VERTICAL STRETCH $\times 3$ (MORE NARROW)
VERTICAL REFLECTION



1.2 Transformations of Linear and Absolute Value Functions (pp. 11-18)

Write a function g whose graph represents the indicated transformations of the graph of f . Use a graphing calculator to check your answer.

7. $f(x) = |x|$; reflection in the x -axis followed by a translation 4 units to the left
8. $f(x) = |x|$; vertical shrink by a factor of $\frac{1}{2}$ followed by a translation 2 units up

7.) $g(x) = -|x+4|$

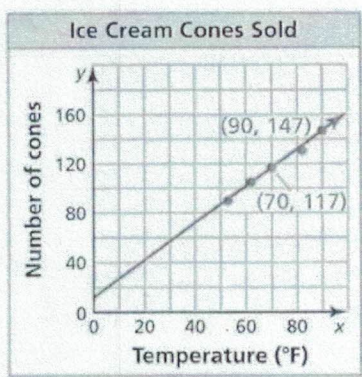
\nwarrow \swarrow
 VERTICAL REFLECTION $\leftarrow 4$

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

\nwarrow \swarrow
 VERTICAL SHRINK $\uparrow 2$

1.3 Modeling with Linear Functions (pp. 21-28)

10. Using the points provided on the graph, write the equation of the best fitting line below.



$$\text{SLOPE} = \frac{147-117}{90-70}$$

$$\text{SLOPE} = \frac{30}{20}$$

$$\text{SLOPE} = \frac{3}{2} \text{ or } 1.5$$

$$y = mx + b$$

USE EITHER POINT

$$147 = 1.5(90) + b$$

$$147 = 135 + b$$

$$b = 12$$

POINTS

$$(90, 147)$$

$$(70, 117)$$

VARIABLES

$x = \text{TEMPERATURE (°F)}$

$y = \# \text{ CONES}$

$$y = 1.5x + 12$$

11. You ride your bike and measure how far you travel. After 10 minutes, you travel 3.5 miles. After 30 minutes, you travel 10.5 miles. Write an equation to model your distance. How far can you ride your bike in 45 minutes?

POINTS

$$(10, 3.5)$$

$$(30, 10.5)$$

$x = \text{TIME (MINUTES)}$

$y = \text{MILES TRAVELLED}$

$$\text{SCOPE} = \frac{10.5-3.5}{30-10}$$

$$\text{SCOPE} = \frac{7}{20} \text{ or } 0.35$$

$y = mx + b$ USE EITHER POINT

$$10.5 = 0.35(30) + b$$

$$10.5 = 10.5 + b$$

$$b = 0$$

$$y = 0.35x$$

$$y = 0.35(45)$$

$$y = 15.75 \text{ miles}$$

1.4

Solving Linear Systems (pp. 29-36)

Solve the system. Check your solution, if possible.

14. $x + y + z = 2$ ①

$2x - 3y + z = 11$ ②

$-3x + 2y - 2z = -13$ ③

⑭ ① $x + y + z = 2$

$-1 \cdot$ ② $-2x + 3y + z = -11$

① $-x + 4y = -9$

$2 \cdot$ ① $2x + 2y + 2z = 4$

③ $-3x + 2y - 2z = -13$

③ $-x + 4y = -9$

① $-x + 4y = -9$

$-1 \cdot$ ③ $x - 4y = 9$

$0 = 0$

INFINITE SOLUTIONS!

15. $x + 4y - 2z = 3$ ①

$x + 3y + 7z = 1$ ②

$2x + 9y - 13z = 2$ ③

⑮ ① $x + 4y - 2z = 3$

$-1 \cdot$ ② $-x - 3y - 7z = -1$

① $y - 9z = 2$

$-2 \cdot$ ① $-2x - 8y + 4z = -6$

③ $2x + 9y - 13z = 2$

③ $y - 9z = -4$

① $y - 9z = 2$

$-1 \cdot$ ③ $-y + 9z = 4$

$0 = 6$

NO SOLUTION!

16. $x - y + 3z = 6$ ①

$x - 2y = 5$ ②

$2x - 2y + 5z = 9$ ③

② \rightarrow ① $x - 2y = 5$

$-5 \cdot$ ① $-5x + 5y - 15z = -30$

$3 \cdot$ ③ $6x - 6y + 15z = 27$

③ $x - y = -3$

$-1 \cdot$ ① $-x + 2y = -5$

③ $x - y = -3$

$y = -8$

③ $x - (-8) = -3$

$x + 8 = -3$

$x = -11$

① $-11 - (-8) + 3z = 6$

$-11 + 8 + 3z = 6$

$-3 + 3z = 6$

$3z = 9$

$z = 3$

$(-11, -8, 3)$

18. A school band performs a spring concert for a crowd of 600 people. The revenue for the concert is \$3150. There are 150 more adults at the concert than students. How many of each type of ticket are sold?

BAND CONCERT		
STUDENTS - \$3	ADULTS - \$7	
CHILDREN UNDER 12 - \$2		

S = # STUDENT TICKETS

A = # ADULT TICKETS

C = # CHILDREN'S TICKETS

① $S + A + C = 600$

② $3S + 7A + 2C = 3150$

③ $S + 150 = A$

REARRANGE ③ $-S + A = 150$ (A)

$-2 \cdot$ ① $-2S - 2A - 2C = -1200$

② $3S + 7A + 2C = 3150$

⑤ $S + 5A = 1950$

④ $-S + A = 150$

$6A = 2100$

$A = 350$

③ $S + 150 = 350$

$S = 200$

① $200 + 350 + C = 600$

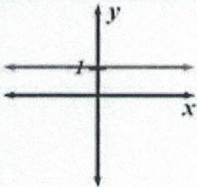
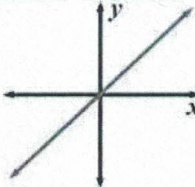
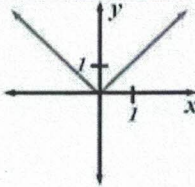
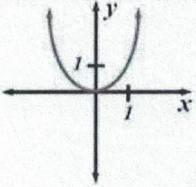
$550 + C = 600$

$C = 50$

200 STUDENT TICKETS

350 ADULT TICKETS

50 CHILDREN'S TICKETS

Function Families			
			
Constant	Linear	Absolute Value	Quadratic
Linear Functions			
Slope-intercept form		$y = mx + b$	
Point-slope form		$y - y_1 = m(x - x_1)$	
Standard form		$Ax + By = C$	