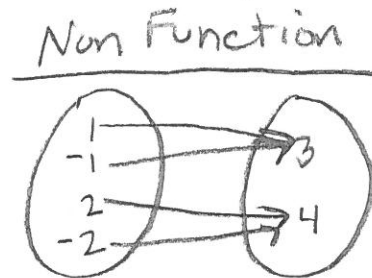
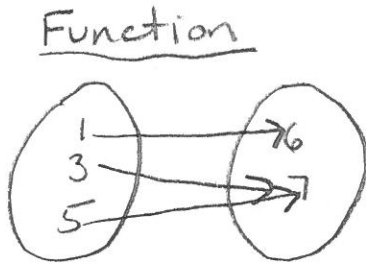
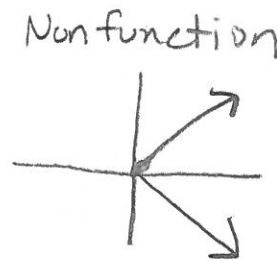
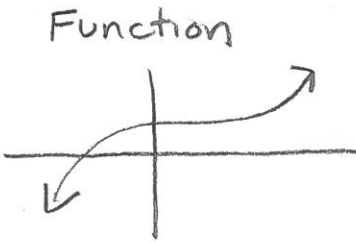


1. Create 2 mapping diagrams, one that represents a function and one that represents a non-function.



2. Show a sketch of a function and a sketch of non-function.



Suppose $f(x) = -x^2 + 3x - 5$ and $g(x) = -3x + 7$, find the following.

3. $f(-1)$

$$\begin{aligned} & -1 - 3 - 5 \\ & -9 \end{aligned}$$

4. $g(3) - f(2)$

$$\begin{aligned} & -2 - -3 \\ & 1 \end{aligned}$$

5. $\sqrt{g(-3)}$

$$4$$

Find the slope of the line containing the two points.

6. (2, -3) and (-5, -7)

$$\frac{-4}{-7} = \frac{4}{7}$$

7. (-1, 6) and (4, 5)

$$-\frac{1}{5}$$

Use point-slope form to find the equation of the line given:

8. the line contains (-5, 2) and (-4, 6)

$$y - 2 = \frac{4}{1}(x + 5)$$

9. the line contains (-3, -7) and (-3, 1)

$$x = -3$$

10. Determine the x-intercept and y-intercept of $(y + 5) = \frac{2}{3}(x - 6)$

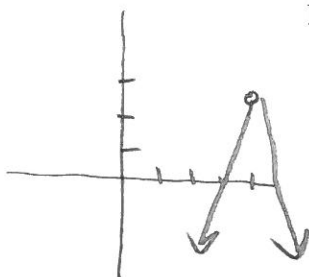
$$\left(\frac{27}{2}, 0\right) \quad (0, -9)$$

For each of the following state the parent function, transformations, domain and range. Make a sketch of the function.

11. $f(x) = -2|x - 4| + 3$

pf: Abs. Value
narrower
reflect over x-axis
right + 4
up 3

D: \mathbb{R}
R: $y \leq 3$



12. $g(x) = \frac{3}{4}\sqrt{x+5}$

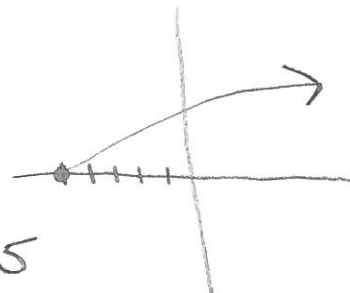
pf: square root

less steep

left + 5

D: $x \geq -5$

R: $y \geq 0$



Given the parent function and a description of the transformations, write the equation of the transformed function.

13. Quadratic – reflected over the x-axis and shifted down 7 units $f(x) = -x^2 - 7$

14. Cubic – less steep, shift left 4 units and up 2 units $g(x) = \frac{1}{2}(x+4)^3 + 2$

Solve the following systems.

15. $2x + 4y = -10$
 $x + 3y = 6$

$(-27, 11)$

16. $x - y + z = -3$
 $2x - y + 5z = 4$
 $4x + 2y - z = 2$

$(-1, 4, 2)$

7. The table shows the tuition costs for a private school between the years 2010 and 2013.

Years after 2010, x	0	1	2	3
Tuition (dollars), y	36,208	37,620	39,088	40,594

a. Verify that the data show a linear relationship. Find the equation of the line of best fit.

$\hat{y} = 1462.6x + 36183.6$

b. Interpret the slope in context to the problem.

TUITION ↑ 1462.60 per year

c. Predict the cost of tuition in 2015.

$58,122.60$