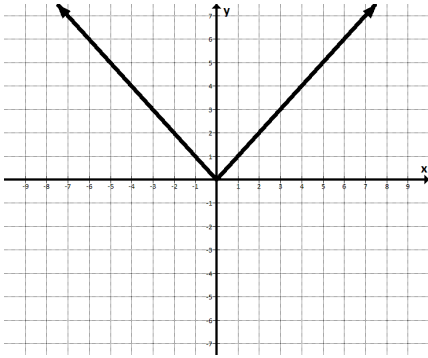Name _____ Date _____ Pd _____

# Side Dish Practice Worksheet
## 1.1 Parent Functions

*Name the parent function, write the equation, and state the domain & range in interval notation.*
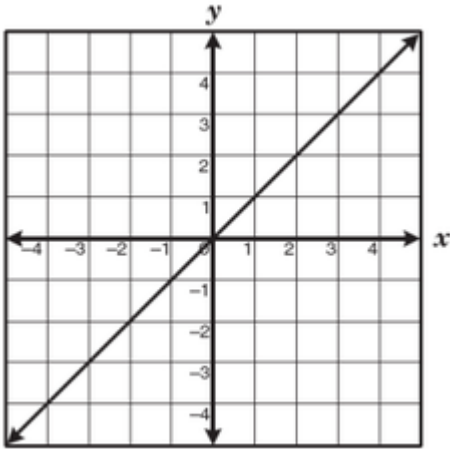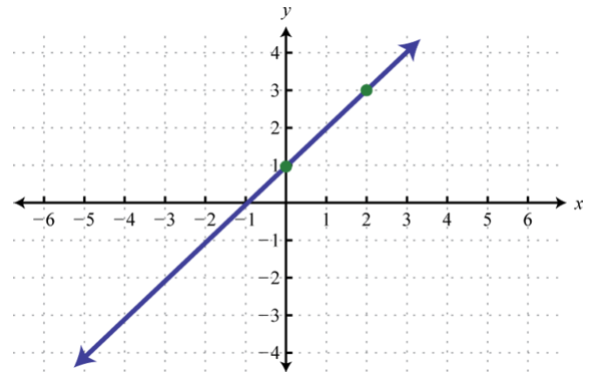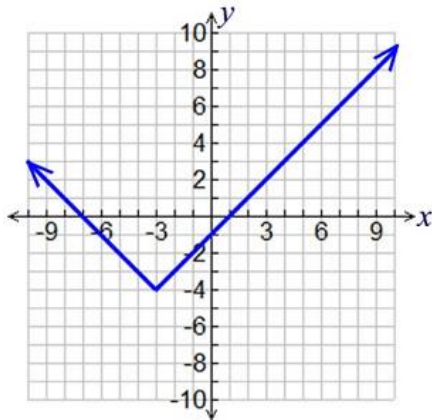


Name:

Equation:

Domain:

Range:



Name:

Equation:

Domain:

Range:

*What is the name of the graph? Describe the transformation in words on how the graph differs from the parent function graph.*

**1.2 Transformations**

Describe in words the change in f(x) = x  for each equation.

What function family? _____

1.  $f(x) = 2x + 3$          2. $f(x) = -\frac{1}{2}x$          3. $f(x) = 4 - x$
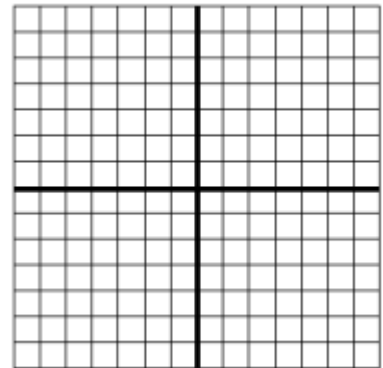
Describe in words the change in f(x) = |x| for each equation.

What function family? _____

4.  $f(x) = 2|x - 1| - 6$          5. $f(x) = -\frac{1}{2}|x + 3|$

6.  f(x) = 4x − 3. Translate the graph up 2 units and then right 2 units. Write the transformed function in terms of g(x) and then graph both equations on the graph provided. Be sure to label the two graphed equations.

7.  f(x) = 2|x| - 3. Transform f(x) with a vertical stretch of 2 and then reflected over the x-axis. Write the transformed function in terms of g(x) and then graph both on the graph provided. Be sure to label your graph appropriately.
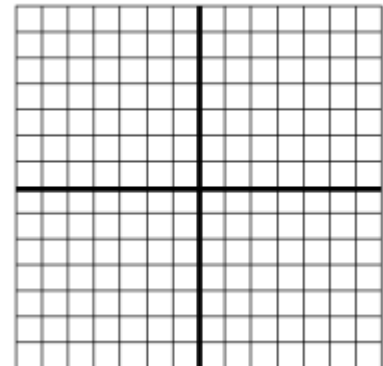
**1.3 Modeling Using Linear Regression**

1. A convenience store manager notices that sales of soft drinks are higher on hotter days, so he assembles the data in the table.

| High Temperature (°F) | Number of cans sold |
|---|---|
| 55 | 340 |
| 58 | 335 |
| 64 | 410 |
| 68 | 460 |
| 70 | 450 |
| 75 | 610 |
| 80 | 735 |
| 84 | 780 |

    a. Write a line of best fit using the calculator for the data provided in the table.

    b. Use the model to predict soft-drink sales if the temperature is 95°F.

2. Anthropologists use a linear model that relates femur length to height. The model allows an anthropologist to determine the height of an individual when only a partial skeleton (including the femur) is found. In this problem, we find the model by analyzing the data on femur length and height for the ten males given in the table.

| Femur Length (cm) | Height (cm) |
|---|---|
| 50.1 | 178.5 |
| 48.3 | 173.6 |
| 45.2 | 164.8 |
| 44.7 | 163.7 |
| 44.5 | 168.3 |
| 42.7 | 165.0 |
| 39.5 | 155.4 |
| 38.0 | 155.0 |

    a. Create a model using linear regression that reflects the collected data.

    b. An anthropologist finds a femur of length 58 cm. How tall was the person?

# 1.4 Solving Linear Systems

*Determine your two variables and write them out. Then write your two equations. Solve your system and show all work. Finally write your solution in terms of the problem in a complete sentence.*

1.  Find the value of two numbers if their sum is 12 and their difference is 4.

    Variables:                              Equations:

    Solution:

2.  The school that Stefan goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 3 senior citizen tickets and 1 child ticket for a total of $38. The school took in $52 on the second day by selling 3 senior citizen tickets and 2 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.
    Variables:                              Equations:

    Solution:

3.  The senior classes at Lancaster High School and Platteville High School planned separate trips to NYC. The senior class at LHS rented and filled 1 van and 6 buses with 372 students. Platteville rented and filled 4 vans and 12 buses with 780 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?
    Variables:                              Equations:

    Solution: