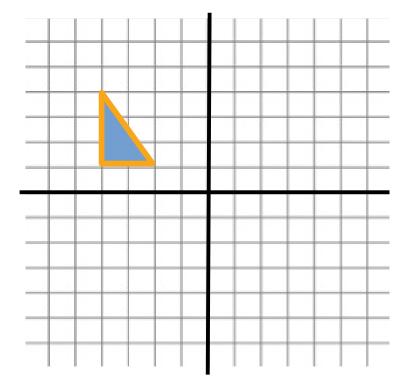
#### **Reflections Worksheet**

Step 1: Label each point (A, B, C) on the triangle below

$$\mathbf{A}(-4,2)$$
  $\mathbf{B}(-2,2)$   $\mathbf{C}(-4,5)$ 



**Step 2**: Draw our triangle reflected across the x-axis, and label each point (D, E, F)

| D | ( | , | <br>) |
|---|---|---|-------|
|   |   |   |       |

**Step 3:** Draw our original triangle reflected across the y-axis, and label each point (G, H, I)

Although all corners labeled above have different x and y coordinates, all 3 triangles are congruent. Keeping in mind that these triangles are congruent, find the matching points for each of our original triangles corners.

| point from original triangle | matching point after reflection on x | matching point after reflection on y |
|------------------------------|--------------------------------------|--------------------------------------|
| <b>A</b> (-4,2)              |                                      |                                      |
| <b>B</b> (-2,-2)             |                                      |                                      |
| C (-4,5)                     |                                      |                                      |

Hint: start with the corner on the right angle first, they are the easiest to match

Think about what changes occurred after the reflections.

Are the changes the same for the reflection across the x-axis and the y-axis?

What stayed the same during the reflection?

### **Word Problem: reflection-x**

**Directions:** Write a function called <u>reflection-x</u>, which takes in an x and y coordinate and returns the y coordinate after reflecting across the x-axis.

| very contract has th             | ree parts:                  |                               |                 |                            |
|----------------------------------|-----------------------------|-------------------------------|-----------------|----------------------------|
| reflection-x                     | · · ·                       |                               |                 | ->                         |
| function name                    |                             | domain                        |                 | range                      |
|                                  |                             |                               |                 |                            |
|                                  | who                         | at does the function do?      |                 |                            |
|                                  |                             | Give Examples                 |                 |                            |
| rite some examples, the          | n circle and label wh       |                               |                 |                            |
| xamples:                         |                             |                               |                 |                            |
|                                  | (                           | )                             | is <u>(</u>     | )                          |
| function name                    | inpu                        | ut(s)                         |                 | what the function produces |
| function name                    | (                           | ut(s)                         | is <u>(</u> _   | what the function produces |
| nd                               |                             |                               |                 |                            |
|                                  |                             |                               |                 |                            |
| Definition  Write the definition | an aiving variable non      | mes to all your input value   |                 |                            |
| write the definition             | iri, givirig variable riari | ries to all your iriput value | <del>7</del> 8. |                            |
| ın                               | (                           | ):                            |                 |                            |
| function name                    | variables                   |                               |                 |                            |
|                                  |                             |                               |                 |                            |
| nd                               |                             |                               |                 |                            |

## **Word Problem: reflection-y**

**Directions:** Write a function called <u>reflection-y</u>, which takes in an x and y coordinate and returns the x coordinate after reflecting across the y-axis.

|                            | Contract+Purpos               | se Statement  |                            |
|----------------------------|-------------------------------|---------------|----------------------------|
| ery contract has three p   | parts:                        |               |                            |
| reflection-v               |                               |               | ->                         |
| function name              | domain                        |               | range                      |
|                            |                               |               |                            |
|                            | what does the fund            | ction do?     |                            |
|                            | Give Exar                     | mples         |                            |
| e some examples, then circ |                               | ···           |                            |
| mples:                     | 1                             | ) is (        | ,                          |
| function name              | input(s)                      |               | what the function produces |
| function name              | (input(s)                     | ) is (        | what the function produces |
| I                          |                               |               |                            |
| Definition                 |                               |               |                            |
| Write the definition, givi | ng variable names to all your | input values. |                            |
| · (                        | ):                            |               |                            |
| function name              | variables                     |               |                            |
|                            |                               |               |                            |
| d                          |                               |               |                            |

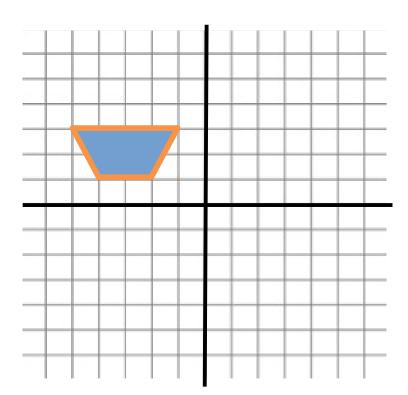
#### **Transformation Worksheet**

**Rule #1** 
$$(x, y) \mapsto (x + 3, y + 4)$$

**Rule #2** ( x, y ) 
$$\longmapsto$$
 (x + 5, y - 7)

Step 1: Label each point (A, B, C, D) on the trapezoid below

$$A(-5,3)$$
  $B(-4,1)$   $C(-2,1)$   $D(-1,3)$ 



**Step 2**: Draw our trapezoid after we apply Rule #1, and label each point (E, F, G, H)

**Step 3:** Draw our trapezoid after we apply Rule #2, and label each point (I, J, K, L)

Keeping in mind these trapezoids are congruent, find the matching points for each of our original trapezoids corners.

| point from original trapezoid | matching point after Rule #1 | matching point after Rule #2 |
|-------------------------------|------------------------------|------------------------------|
| <b>A</b> (-5,3)               |                              |                              |
| <b>B</b> (-4,1)               |                              |                              |
| C(-2,1)                       |                              |                              |
| <b>D</b> (-1,3)               |                              |                              |

Think about what changes occurred after the rules are applied.

### **Word Problem: translation-x**

**Directions:** Write a function called  $\underline{translation}$ , which takes in the translation to perform on x, and an x and y coordinate, and returns the x coordinate after performing only the translation relating to the x coordinate.

|                                | Contract+Pu               | rpose Statement    |                            |
|--------------------------------|---------------------------|--------------------|----------------------------|
| Every contract has three p     | parts:                    |                    |                            |
| # <u>translation-x</u>         | •                         |                    | >                          |
| function name                  |                           | domain             | range                      |
| <i>‡</i>                       |                           |                    |                            |
|                                | what does the             | ? function do?     |                            |
|                                | Give E                    | Examples           |                            |
| Write some examples, then circ |                           |                    |                            |
| examples:                      |                           |                    |                            |
| function name                  | (<br>input(s)             | ) is <u>(</u>      | what the function produces |
| junction name                  | (                         | ) is (             | )                          |
| function name                  | input(s)                  |                    | what the function produces |
| end                            |                           |                    |                            |
| Definition                     |                           |                    |                            |
|                                | ing variable names to all | your input values. |                            |
| <sup>-</sup> un (              | ):                        |                    |                            |
| function name                  | variables                 |                    |                            |
|                                |                           |                    |                            |
| end                            |                           |                    |                            |

# **Word Problem: translation-y**

**Directions:** Write a function called <u>translation-y</u>, which takes in the translation to perform on y, and an x, and y coordinate, and returns the y coordinate after performing only the translation relating to the y coordinate.

|                           | Contract+P                 | urpose Statement       |                            |
|---------------------------|----------------------------|------------------------|----------------------------|
| Every contract has thre   | e parts:                   |                        |                            |
| # <u>translation-y</u>    | ••                         |                        | ->                         |
| function name             |                            | domain                 | range                      |
| #                         |                            |                        |                            |
|                           | what does t                | he function do?        |                            |
|                           | Give                       | Examples               |                            |
| Write some examples, then |                            |                        |                            |
| examples:                 | (                          | ) is (                 | ,                          |
| function name             | input(s)                   |                        | what the function produces |
| ·<br>                     |                            | ) is (                 |                            |
| function name             | input(s)                   |                        | what the function produces |
| end                       |                            |                        |                            |
| Definition                |                            |                        |                            |
| Definition                | giving variable names to a | ll vour input volues   |                            |
| vviile the deminion,      | giving variable names to a | ii your iriput values. |                            |
| <sup>-</sup> un (_        | ):                         |                        |                            |
| function name             | variables                  |                        |                            |
|                           |                            |                        |                            |
| end                       |                            |                        |                            |