**8 Algebra CC 6-6**

**Essential Question:** How do we graph linear relationships with restricted domains?

**Do Now:** In a local convenient store, rolls of paper towels sell for $1.50 each. Due to a recent shortage, the store is only allowing customers to purchase up to 5 rolls. The function rule that describes the relationship between the number of rolls of paper towels purchased (x) and the total cost (y) is **y = 1.50x**.

Create a table of values for this function rule. Before choosing your input values (x), think about the context of the situation. What numbers should x represent?

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| **X**  **Number of Rolls** | **Y**  **Total Cost** |
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***Think about this…***

**Does the linear function from the Do Now have a restricted domain?**

**Does the linear function from the Do Now have a restricted range?**

**What does the graph of this function look like?**

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**Does it make sense to connect the points?**

**Domain:**

**Range:**

**Graphing Linear Functions with Restricted Domains**

1. Graph the following linear function using the domain **[-1, 3]** where **x** is a real number.

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**y = 2x – 1**

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| **x** | **y** |
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Represent the **range** of the function using an inequality statement and interval notation.

**Inequality Statement**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Interval Notation**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Graph the following linear function using the domain **0 < x < 2** where **x** is a real number.

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**4y + 12x = 8**

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| **x** | **y** |
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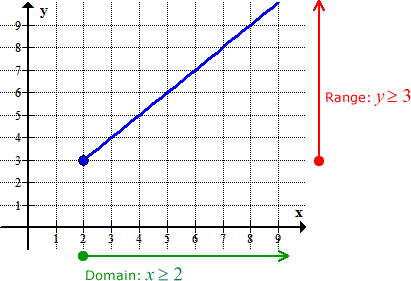
Represent the **range** of the function using an inequality statement and interval notation.

**Inequality Statement**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Interval Notation**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

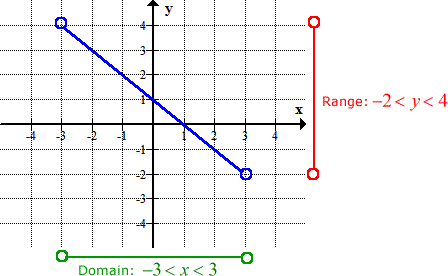
**Defining the Domain and Range from a Graph**

Consider the linear functions graphed below. Define the **domain** and **range** of the function using an inequality statement and interval notation.

3.

**Domain:**

**Range:**



**The Take Away**

Linear functions with restricted domains have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ranges. The domains and ranges of the functions can be defined using an inequality statement or interval notation.

**Domain:**

**Range:**

4.

**8 Algebra CC HW # \_\_\_\_\_\_\_\_**

1. Graph the following linear function using the domain **-6 < x < -2** where **x** is a real number.

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**y – x = 1**

Represent the **range** of the function using an inequality statement and interval notation.

**Inequality Statement**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Interval Notation**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Graph the following linear function using the domain **[-8, 4]** where **x** is a real number.

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**y = -0.25x + 2**

Represent the **range** of the function using an inequality statement and interval notation.

**Inequality Statement**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Interval Notation**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_