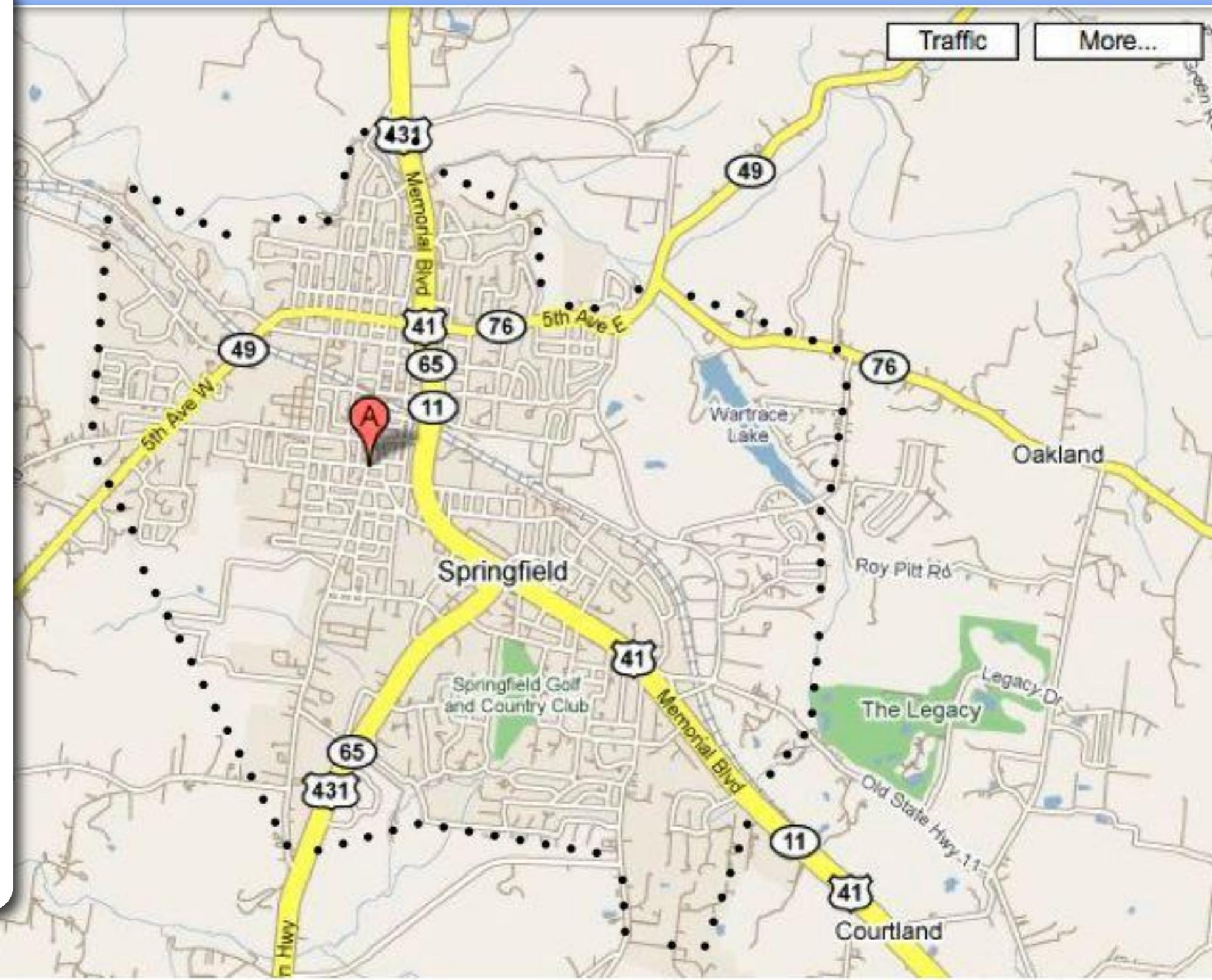


# Algebra 1 Predicting Patterns & Examining Experiments

Unit 2: Maintaining Balance  
Section 6: Dealing with Imbalance

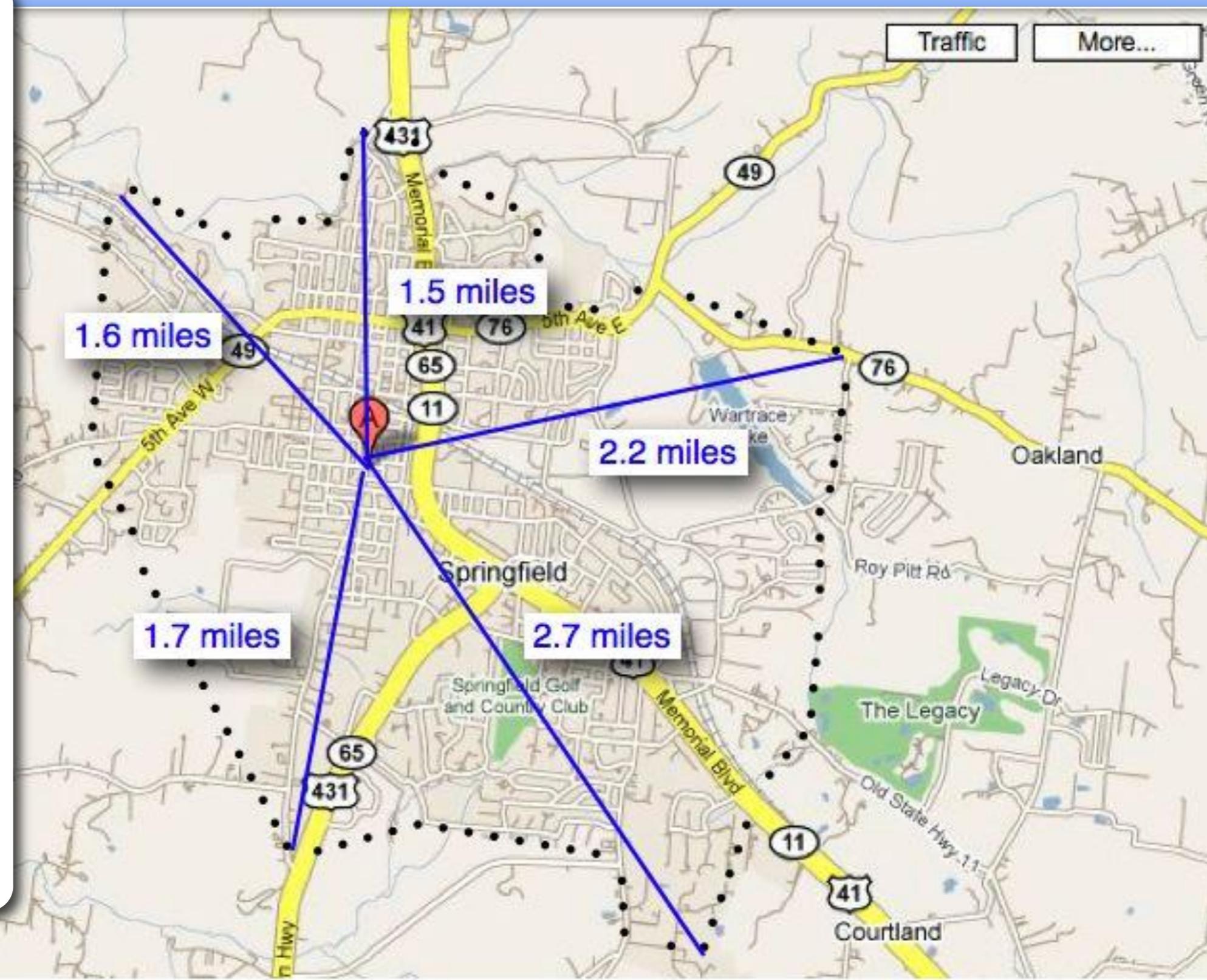
# How many miles can Lisa ride?

Lisa wants to go on a bike ride, but her parents tell her she must stay within city limits. How far from her home are the locations she can visit?



# How many miles can Lisa ride?

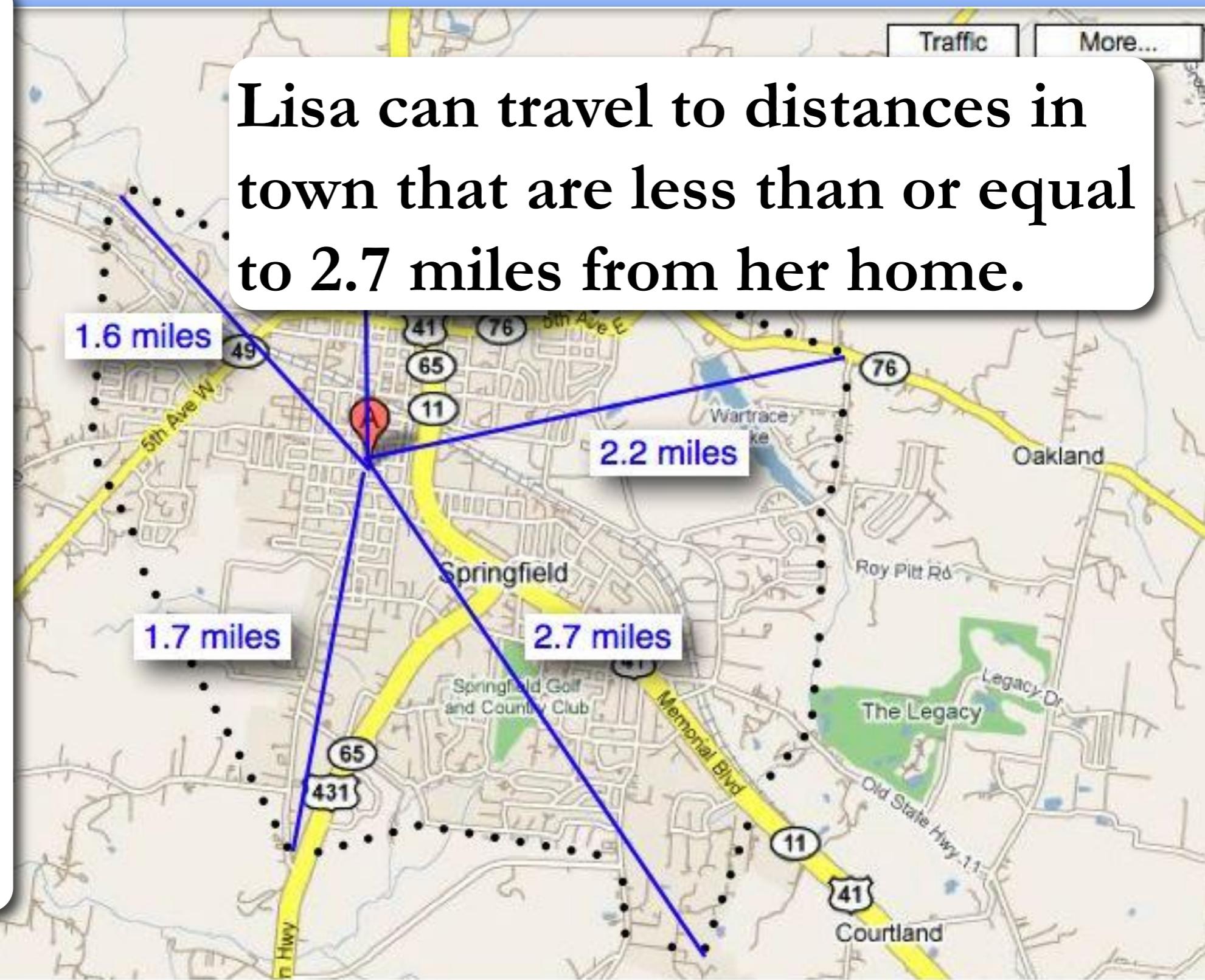
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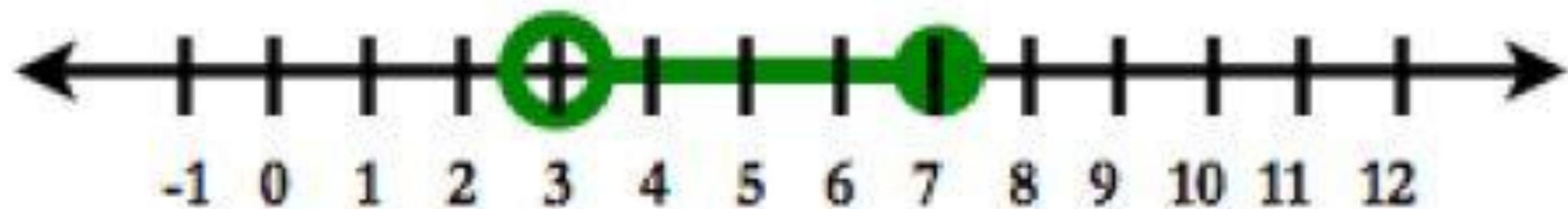
# How many miles can Lisa ride?

Lisa wants to go on a bike ride, but her parents tell her she must stay within city limits. How far from her home are the locations she can visit?

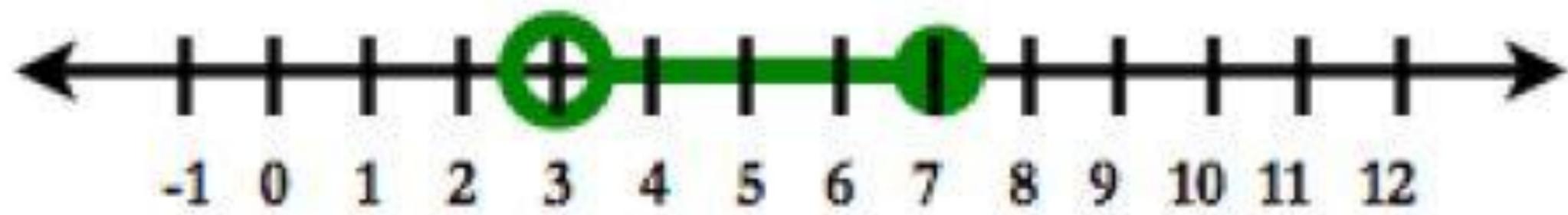
Lisa can travel to distances in town that are less than or equal to 2.7 miles from her home.



Describe all the points marked below

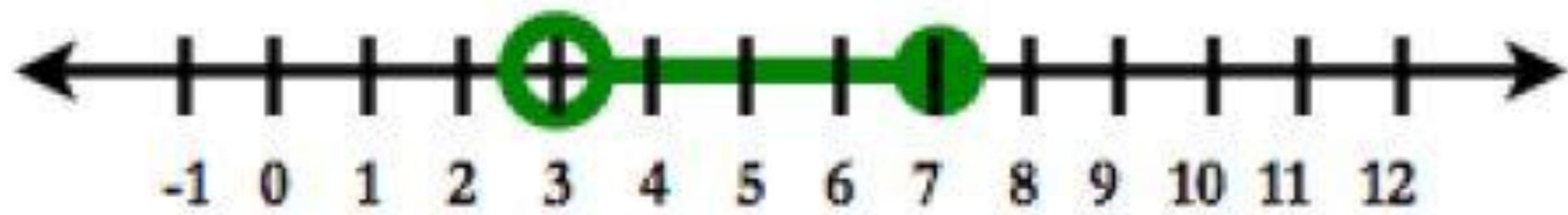


# Describe all the points marked below



All points marked are between three and seven. Seven is included while three is not.

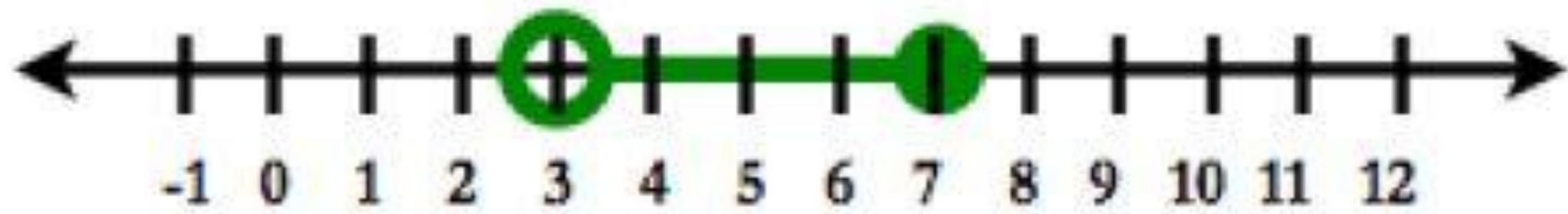
# Describe all the points marked below



**Descriptive:**

All points marked are between three and seven. Seven is included while three is not.

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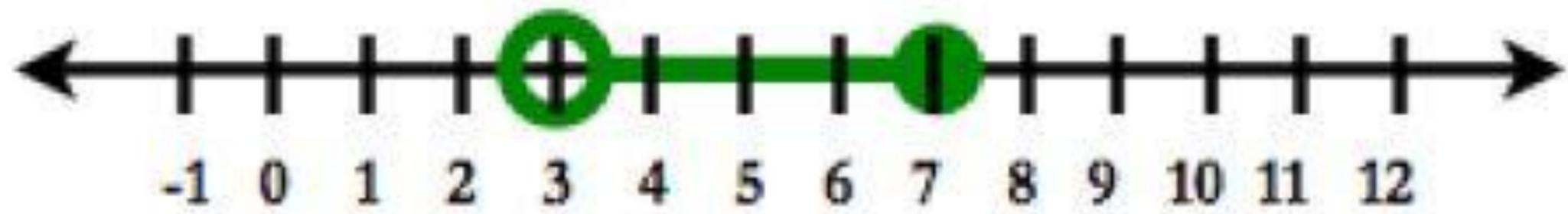


**Descriptive:**

All points marked are between three and seven. Seven is included while three is not.

**Analytic:**

# Describe all the points marked below



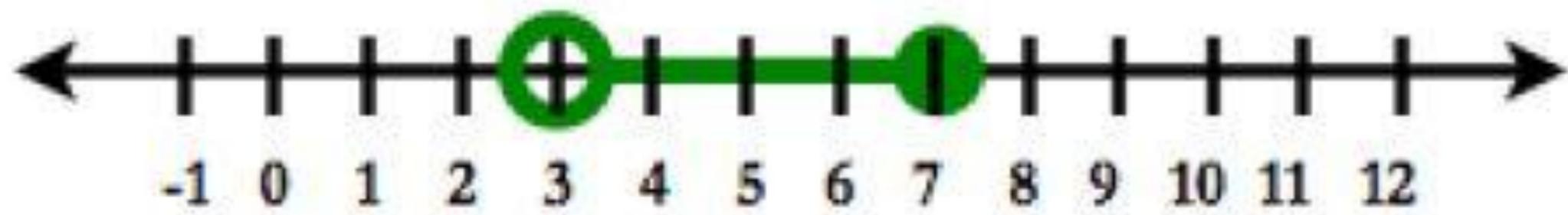
**Descriptive:**

All points marked are between three and seven. Seven is included while three is not.

**Analytic:**

$$x > 3 \text{ and } x \leq 7$$

# Describe all the points marked below



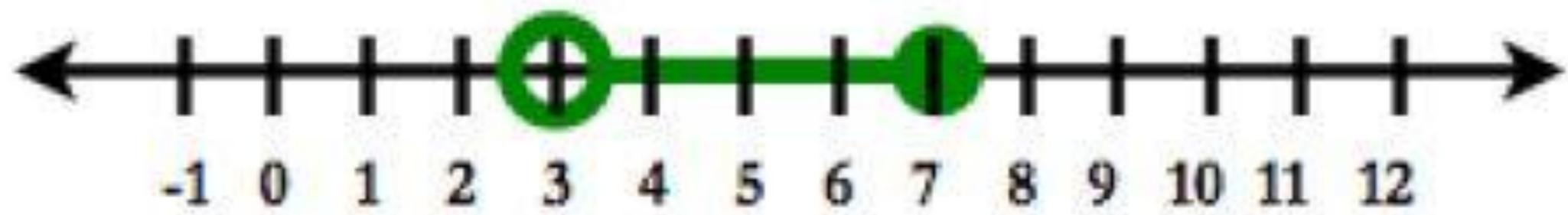
**Descriptive:**

All points marked are between three and seven. Seven is included while three is not.

**Analytic:**

$$3 < x \text{ and } x \leq 7$$

# Describe all the points marked below



**Descriptive:**

All points marked are between three and seven. Seven is included while three is not.

**Analytic:**

$$3 < x \leq 7$$

# Draw these number lines

Draw a number line for each of the following and indicate the numbers described:

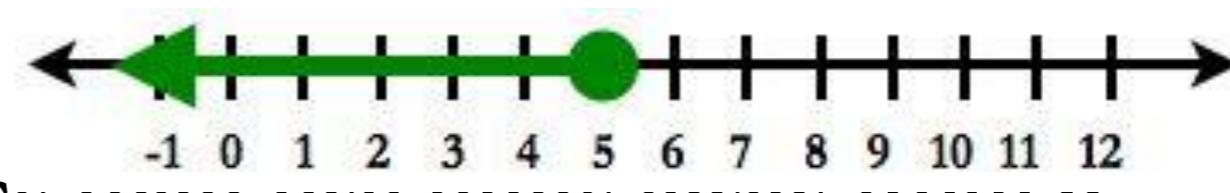
- a) All numbers that are less than or equal to 5.

- b) All numbers that are less than five units away from 0.
- c) All numbers that are greater than  $-1$  and less than or equal to 7.
- d) All numbers that are greater than or equal to four units from  $-1$ .

# Draw these number lines

Draw a number line for each of the following and indicate the numbers described:

a) All numbers that are less than or equal to 5.

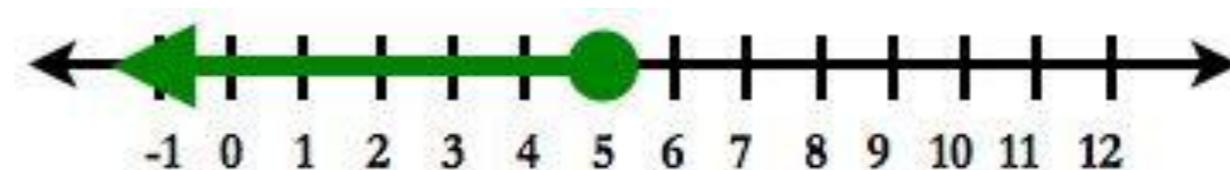


- b) All numbers that are less than five units away from 0.
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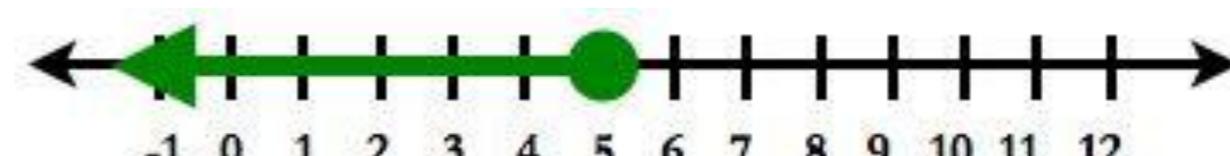


d) All numbers that are greater than or equal to four units from -1.

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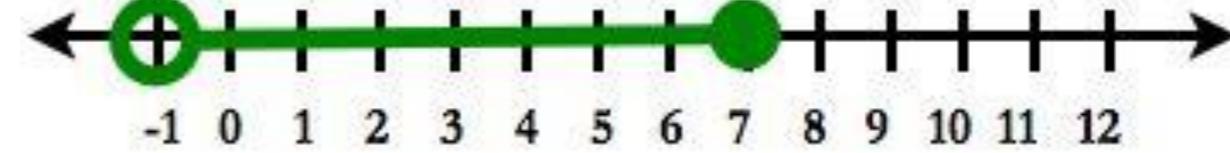
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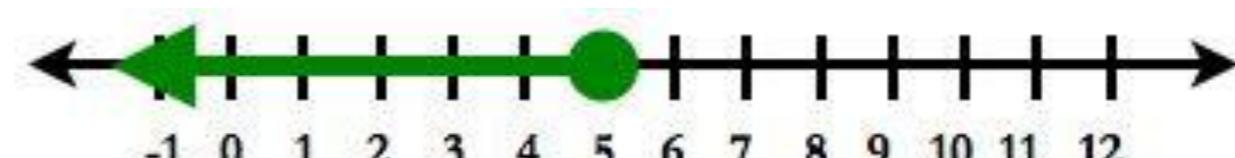
c) All numbers that are less than or equal to 7.



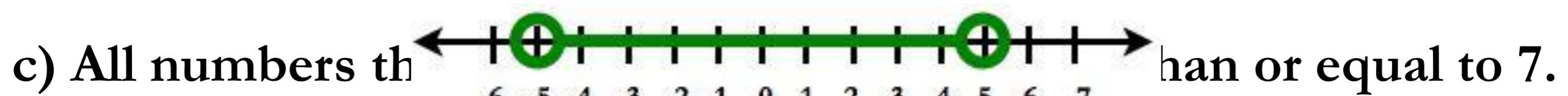
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Draw a number line for each of the following and indicate the numbers described:

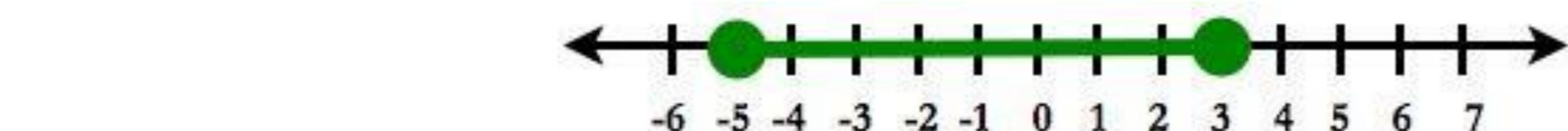
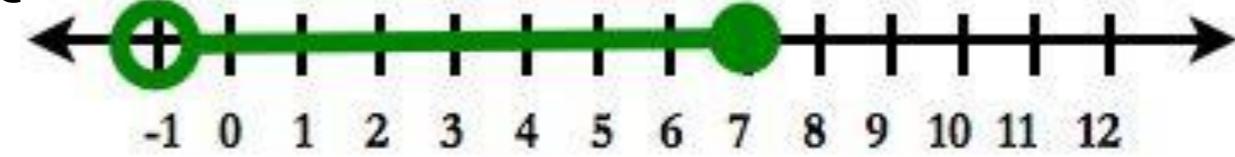
a) All numbers that are less than or equal to 5.



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c) All numbers that are less than or equal to 7.



# How many visits?



A season pass to an amusement park is \$239. A single-day ticket costs \$24.95.

What number of visits to the park make the season pass a better buy?

# How many visits?

days at the park	total cost
0	\$0
1	24.95
2	49.90
3	74.85
...	...

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x	...

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$$24.95 \cdot x \geq 239$$

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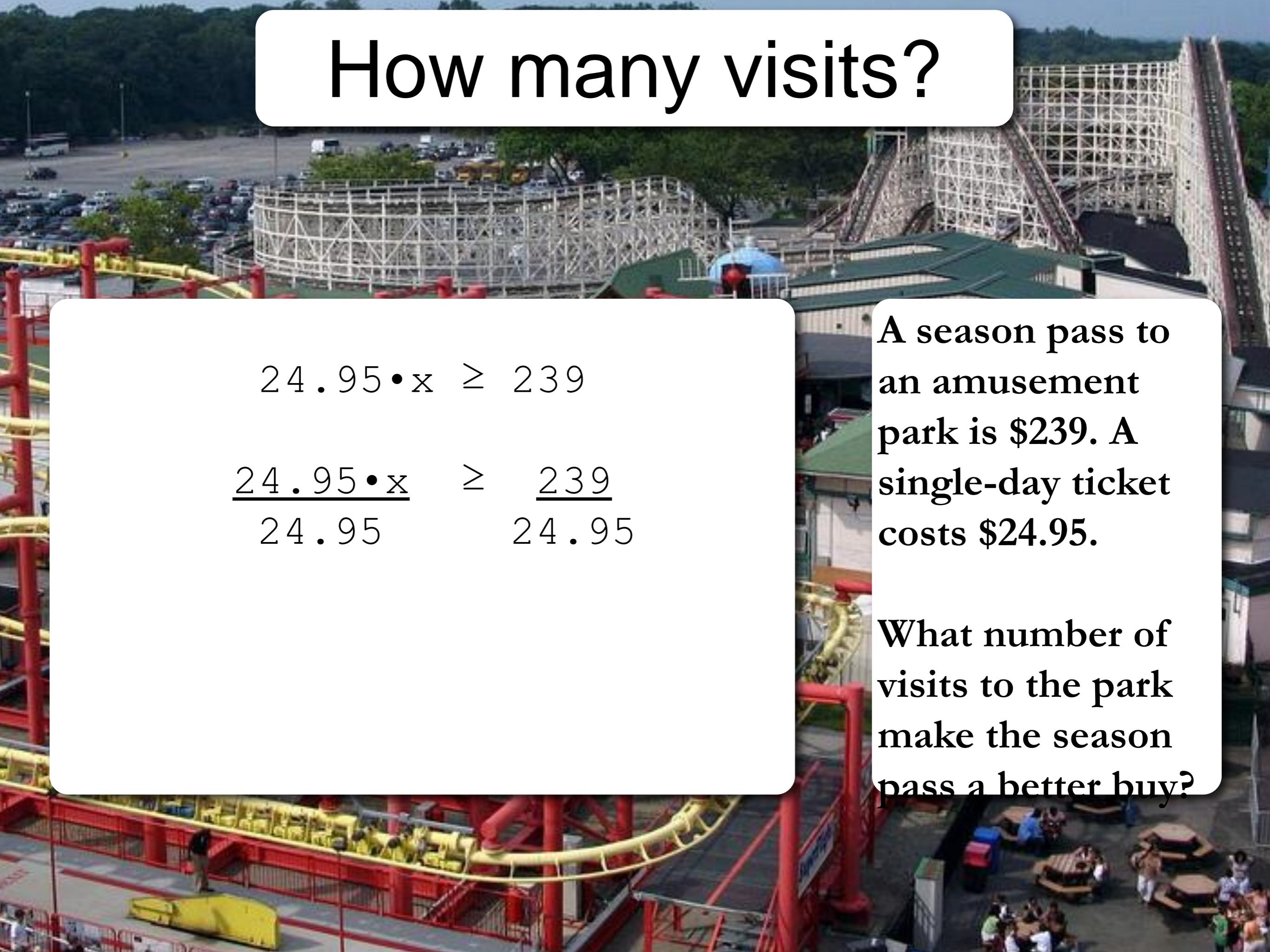
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$$24.95 \cdot x \geq 239$$

$$\frac{24.95 \cdot x}{24.95} \geq \frac{239}{24.95}$$

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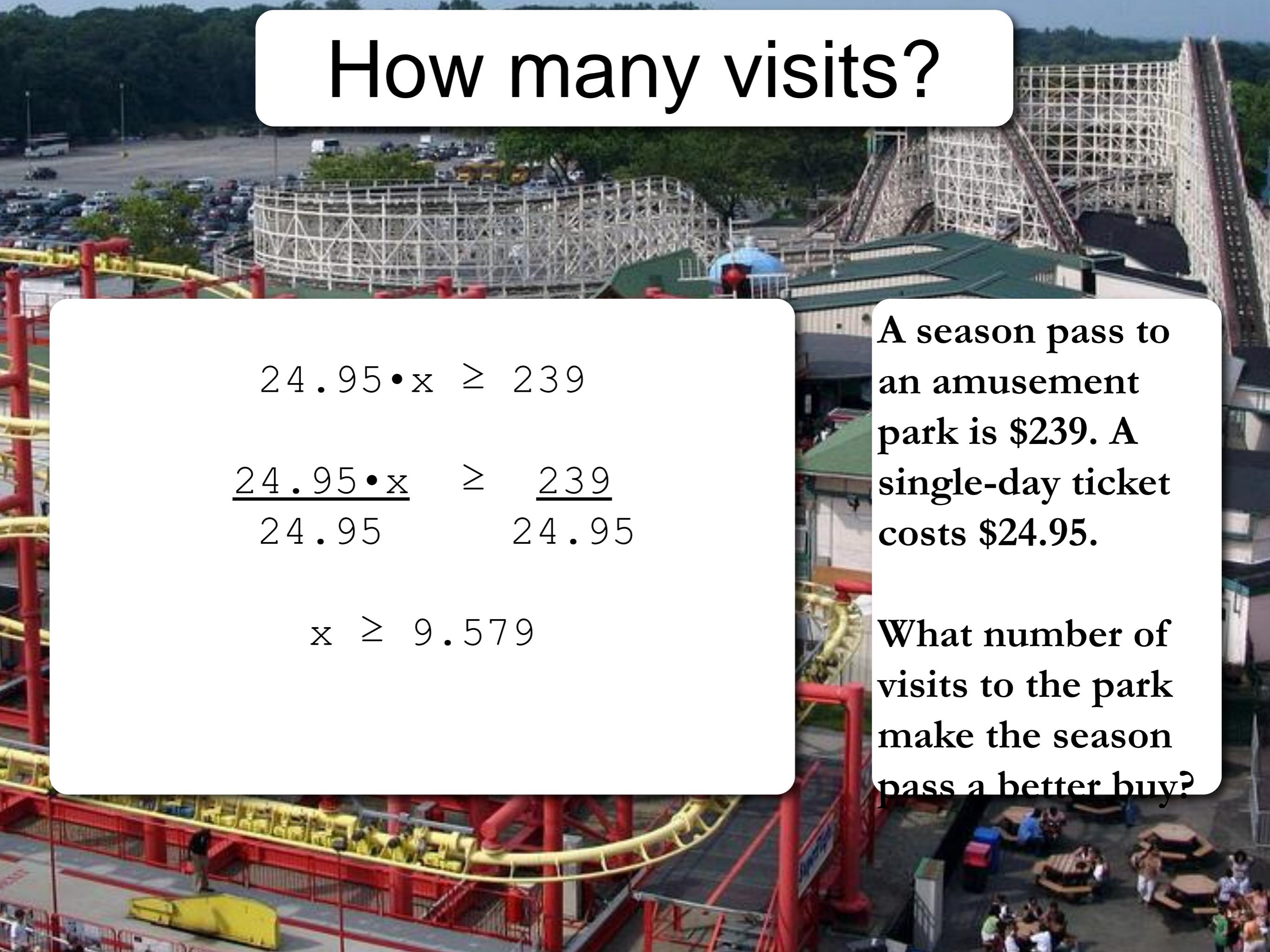
$$24.95 \cdot x \geq 239$$

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$$x \geq 9.579$$

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# How many visits?

$$24.95 \cdot x \geq 239$$

$$\frac{24.95 \cdot x}{24.95} \geq \frac{239}{24.95}$$

$$x \geq 9.579$$

If you visit the park ten times or more, than the season pass will be the best deal.

A season pass to an amusement park is \$239. A single-day ticket costs \$24.95.

What number of visits to the park make the season pass a better buy?

# Can you ace the ACT?

The inequality  $3(x + 2) > 4(x - 3)$  is equivalent to which of the following inequalities?

- F.  $x < -6$
- G.  $x < 5$
- H.  $x < 9$
- J.  $x < 14$
- K.  $x < 18$

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$$3(x + 2) > 4(x - 3)$$

$$3x + 6 > 4x - 12$$

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$$\begin{array}{rcl} 3(x + 2) & > & 4(x - 3) \\ 3x + 6 & > & 4x - 12 \\ -4x & & -4x \end{array}$$

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$$-x > -18$$

The opposite of our answers are greater than the opposite of  $-18$ .

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$$3(x + 2) > 4(x - 3)$$

$$\begin{array}{rcl} 3x + 6 & > & 4x - 12 \\ -4x & & -4x \end{array}$$

$$\begin{array}{rcl} -x + 6 & > & -12 \\ -6 & & -6 \end{array}$$

$$-x > -18$$

The opposite of our answers are greater than the opposite of  $-18$ . Therefore, our answers are LESS THAN  $18$ .

# Can you ace the ACT?

The inequality  $3(x + 2) > 4(x - 3)$  is equivalent to which of the following inequalities?

F.  $x < -6$

G.  $x < 5$

H.  $x < 9$

J.  $x < 14$

K.  $x < 18$

$$3(x + 2) > 4(x - 3)$$

$$\begin{array}{rcl} 3x + 6 & > & 4x - 12 \\ -4x & & -4x \end{array}$$

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$$\begin{array}{rcl} -x & > & -18 \end{array}$$

$$\begin{array}{rcl} x & < & 18 \end{array}$$

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$$\begin{array}{rcl} -x + 6 & > & -12 \\ -6 & & -6 \end{array}$$

If you divide by a negative in an inequality, you must switch the direction of the sign.

$$\begin{array}{rcl} -x & > & -18 \\ x & < & 18 \end{array}$$

# **Disclaimer**

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**Amusement Park From Above**

<http://www.flickr.com/photos/amatuerphotographer/3757838844/>