## Inequality Constraint or Condition Word Problems - Guided Lesson Explanation

**Explanation#1**

a. The total cost is going to be $60 + $5.75 per person.

Let x = the number of people.

The total cost has a maximum value of $120. So it can't be greater than that amount. Putting it all together to make an equation:

$120 $\geq$ $60 + $5.75x

b. We can figure out the total number of people that can be based on the whole number value for x. Solve for x.

120 $\geq$ 60 + 5.75x

-60          -60

 Subtract 60 from both sides.

   60          $\geq$          5.75x

 $\div$ 5.75             $\div$ 5.75

Divide both sides by 5.75.

10.43    $\geq$      x

The whole number value would represent the total number of people.

So the answer is 10 people.

**Explanation#2**

a. She started with $550.  She will be withdrawing $20 every week.

Let x = the number of weeks.

The minimum value is $300. So the amount has to be $300 or greater.

Putting it all together:

550 − 20x $\geq$ 300

b. solve for x

550 − 20x $\geq$ 300

Subtract 550 from both sides.

  250     $\geq$     20x

$\div$ 20         $\div$ 20

Divide both sides by 20

12.5 $\geq$  x

Casia can withdraw from her account for 12 weeks.

**Explanation#3**

Let x = number of miles          The rate per mile is $0.30

Total cost of a bike =  $2.25 + 0.3x

There is a maximum amount that the cost cannot be greater than ($12)

$2.25 + 0.3x $\leq$ $12

b) Get x by itself to determine the total number of miles. You can do this by dividing both sides by the cost ($2.50)

$2.25 + 0.3x $\leq$ $12     (-$2.25)

0.3x $\leq$ $9.75            ($\div$ 0.3)

x $\leq$ 32.5

So, James can travel up to 32.5 miles.