

# Inequality Word Problems

9/28

\* Setup the Same Way as equations

Key Words: At Most  $\leq$   
 At least  $\geq$   
 Minimum  $\geq$   
 Maximum  $\leq$

Sep 20-8:11 AM

## Inequality Word Problems

$>$	$\geq$	$<$	$\leq$
Is more than Is greater than Is larger than above	minimum at least Is not less than not smaller than Greater than or equal to	Is smaller than Is less than below	maximum at most not more than Is not greater than less than or equal to

\* Answers always need to be interpreted.  
 (You'll need a sentence)

Sep 23-8:21 AM

1. BEACHCOMBING Jay has lost his mother's favorite necklace, so he will rent a metal detector to try to find it. A rental company charges a one-time rental fee of \$15 plus \$2 per hour to rent a metal detector. Jay has only \$35 to spend. What is the maximum amount of time he can rent the metal detector?

Jay can rent it for a max. of 10 hours.

$$15 + 2x \leq 35$$

$$\begin{array}{r} -15 \phantom{00} \\ \hline 2x \leq 20 \\ \frac{2x}{2} \leq \frac{20}{2} \\ \boxed{x \leq 10} \end{array}$$

$(0, 10]$

2. AGES Bobby, Billy, and Barry Smith are each one year apart in age. The sum of their ages is greater than the age of their father, who is 60. How old can the oldest brother be?

$B_o = x = 19$   
 $B_i = x + 1 = 20$   
 $B_a = x + 2 = 21$

The youngest the oldest brother could be is 22 years old.

$$x + x + 1 + x + 2 > 60$$

$$3x + 3 > 60$$

$$\begin{array}{r} -3 \phantom{00} \\ \hline 3x > 57 \\ \frac{3x}{3} > \frac{57}{3} \\ \boxed{x > 19} \end{array}$$

Sep 20-8:12 AM

3. TAXI FARE Jamal works in a city and sometimes takes a taxi to work. The taxicabs charge \$1.50 for the first  $\frac{1}{5}$  mile and \$0.25 for each additional  $\frac{1}{5}$  mile. Jamal has only \$3.75 in his pocket. What is the maximum distance he can travel by taxi if he does not tip the driver?

$$1.50 + 5(.25)x \leq 3.75$$

$$1.50 + 1.25x \leq 3.75$$

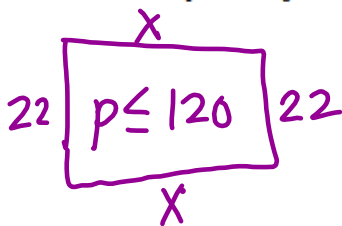
$$\begin{array}{r} -1.50 \phantom{00} \\ \hline 1.25x \leq 2.25 \end{array}$$

[dividing by  $\frac{1}{5}$  is the same as multiplying by 5]

$x \leq 1.8 \text{ miles}$

He can travel 1.8 miles or less.

4. PLAYGROUND The perimeter of a rectangular playground must be no greater than 120 meters, because that is the total length of the materials available for the border. The width of the playground cannot exceed 22 meters. What are the possible lengths of the playground?



$$2x + 44 \leq 120$$

$$\begin{array}{r} -44 \phantom{00} \\ \hline 2x \leq 76 \\ \frac{2x}{2} \leq \frac{76}{2} \\ \boxed{x \leq 38} \end{array}$$

Length  $\leq 38\text{m}$

Width  $\leq 22\text{m}$

Sep 20-8:12 AM