Solving Word Problems Using Inequalities

Example 1

↳ will involve $<, \leq, >,$ OR $\geq$

You are planting trees as a summer job. You are paid $0.10 per tree planted. You want to earn at least $20/h. How many trees must you plant per hour in order to achieve your goal?

① Define a variable.   Let t = # of trees planted per hour

② Write an inequality using the variable.

"at least"

$\$0.10\, p \geq \$20$

③ Solve it using skills just practiced!

$$\frac{\$0.10\,p}{\$0.10} \geq \frac{\$20}{\$0.10}$$

$$p \geq 200$$

You would need to plant 200 trees (or more) to earn $20/hour.

Example 2

Your friend mows lawns and cleans pools during the summer. He earns $20 per lawn and $9 per pool. He needs $1500 to buy a new computer. If he plans to mow 41 lawns this summer, how many pools must be clean to earn at least $1500?

Let p = # of pools cleaned

$earned from lawns + $ earned from pools $\geq$ $1500

$$\$20(41) + \$9p \geq \$1500$$

$$\$820 + \$9p \geq \$1500$$

$$\$9p \geq \$1500 - \$820$$

$$\frac{\$9p}{\$9} \geq \frac{\$680}{\$9}$$

$$p \geq 75.6$$

You would need to clean at least 76 in order to earn at least $1500.
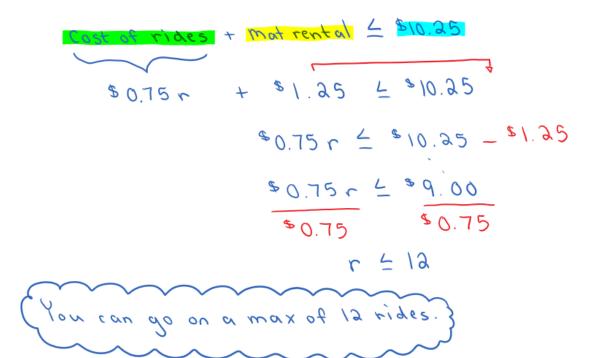
Need to round value of p UP because 75 pools would not earn $1500.

Also, doesn't make sense to say you clean 75.6 pools so you can't give a decimal as the final solution.

Example 3

A super-slide charges $1.25 to rent a mat and $0.75 per ride. You have a max of $10.25 to spend. How many rides can you go on?

Let r = # of rides you can go on

Cost of rides + mat rental $\leq$ $10.25

$$\$0.75r + \$1.25 \leq \$10.25$$

$$\$0.75r \leq \$10.25 - \$1.25$$

$$\frac{\$0.75r}{\$0.75} \leq \frac{\$9.00}{\$0.75}$$

$$r \leq 12$$

You can go on a max of 12 rides.

STOP   Complete the following: Practice - Word Problems involving Inequalities

Outcomes: PR4 - Single variable linear inequalities