

B: Solving Inequalities (Single-Step) Continued

Examples:

1. A company needs to purchase silicon chips that cost \$70 each. How many chips can they buy if they spend no more than \$2800? * Red ✓ indicates where a mark would be granted.

x - number of silicon chips. ✓

$70x$ - cost of all chips

2800 = maximum total

$$70x \leq 2800 \quad \checkmark$$

$$\frac{70x}{70} \leq \frac{2800}{70}$$

$$x \leq 40 \quad \checkmark$$

The company could buy a maximum of 40 silicon chips.

2. For the following inequality, state three values that are specific solutions; three values that are non-solutions.

$$-10 + 2x < -20$$

$$\begin{array}{r} -10 + 2x < -20 \\ +10 \quad \quad +10 \end{array}$$

$$2x < -10$$

$$\frac{2x}{2} < \frac{-10}{2}$$

$$\underline{x < -5}$$

* The solution is any number less than -5!

Specific solution = -6, -7, -8 etc.

non solution = -5, -4, -3 etc.

3. A printing company charges \$0.20 per page or \$240 per month for unlimited printing. At what point would the monthly rate be the better option?

x - number of pages printed ✓

* Special would be the better option when the per page cost is greater than \$240.

$$0.20x = \text{per page cost}$$

$$0.20x > 240 \quad \checkmark$$

$$\frac{0.20x}{0.20} > \frac{240}{0.20}$$

$$x > 1200 \quad \checkmark$$

The monthly ~~rate~~ would be the better option if more than 1200 pages need to be printed.

4. A car is filled with 52L of fuel. It uses fuel at 6.4L/100km. How many kilometers can be driven with this amount of fuel? * This is a proportion, (ratio) problem.

x - # of kilometers that can be driven. ✓

$$\frac{6.4L}{100km} \leq \frac{52}{x} \quad \checkmark$$

$$\frac{6.4}{100} \times \frac{52}{x}$$

$$6.4x \leq 5200$$

$$\frac{6.4x}{6.4} \leq \frac{5200}{6.4}$$

$x \leq 812.5 \text{ km}$ ✓ The car can drive a maximum of 812.5 km.

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