Inequality Worksheets

1. As a salesperson, Jonathan is paid $50 per week plus 3% of the total amount he sells. This week, he wants to earn at least $100. Write an inequality for the total sales needed to earn at least $100, and describe what the solution represents.

2. Traci collects donations for a dance marathon. One group of sponsors will donate a total of $6 for each hour she dances. Another group of sponsors will donate $75 no matter how long she dances. What number of hours, to the nearest minute, should Traci dance if she wants to raise at least $1,000?

Inequality Worksheets

1. As a salesperson, Jonathan is paid $50 per week plus 3% of the total amount he sells. This week, he wants to earn at least $100. Write an inequality for the total sales needed to earn at least $100, and describe what the solution represents.

Let the variable p represent the purchase amount.

$$50 + \frac{3}{100}p \geq 100$$

$$\frac{3}{100}p + 50 \geq 100$$

$$(100)\left(\frac{3}{100}p\right) + 100(50) \geq 100(100)$$

$$3p + 5000 \geq 10000$$

$$3p + 5000 - 5000 \geq 10000 - 5000$$

$$3p + 0 \geq 5000$$

$$\left(\frac{1}{3}\right)(3p) \geq \left(\frac{1}{3}\right)(5000)$$

$$p \geq 1666\frac{2}{3}$$

Jonathan must sell $\mathbf{\$1,666.67}$ in total purchases.

2. Traci collects donations for a dance marathon. One group of sponsors will donate a total of $6 for each hour she dances. Another group of sponsors will donate $75 no matter how long she dances. What number of hours, to the nearest minute, should Traci dance if she wants to raise at least $1,000?

Let the variable h represent the number of hours Traci dances.

$$6h + 75 \geq 1000$$

$$6h + 75 - 75 \geq 1000 - 75$$

$$6h + 0 \geq 925$$

$$\left(\frac{1}{6}\right)(6h) \geq \left(\frac{1}{6}\right)(925)$$

$$h \geq 154\frac{1}{6}$$

Traci would have to dance at least 154 hours and 10 minutes.

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