Key

Oct. 15 Worksheet

1. Solve $\qquad 4 - 3(x + 5) = (x/4) - 7$

$$X = \frac{-16}{13}$$

2. Solve $\qquad 5 - 4(x - 3) \geq (x/3) + 8$

$$X \leq \frac{27}{13}$$

3. The formula for converting temperature from Celsius (C) to Fahrenheit (F) is $F = (\,\boxed{9/5}\,)C + 32$.

   What temperature range in Celsius corresponds to the range from 50F to 86F

   $10°C$ to $30°C$

   $$10 \leq C \leq 30$$

4. A financial analyst for a new tech startup has determined that the total cost to produce and sell x units of a new gadget is given by the function $C = 45x + 2500$. The revenue from selling x units is given by the function $R = 120x$.

   Find the values of x for which the company will break even or make a profit.

   $$X \geq 34 \text{ units}$$

5. A small business sells artisanal candles. The variable cost for producing each candle is $8.50, and the fixed cost for the manufacturing operation is $3,000 per month. The business sells each candle for $20.00.

How many candles need to be sold each month in order to break even/make a profit?

$$X \geq 261 \text{ candles}$$

6. A local coffee shop sells freshly baked muffins. The variable cost to make each muffin is $1.25, and the fixed cost for daily operations is $200. The coffee shop sells each muffin for $3.75.

How many muffins do they need to sell each day to break even or make a profit?

$$X \geq 80 \text{ muffins}$$