

Math 70 Quiz #7 Answers

1. Note: $\frac{x+5}{3} = \frac{x}{2} + 2$ is the same as $\frac{x}{3} + \frac{5}{3} = \frac{x}{2} + 2$

One way to do the problem is to clear the fractions. (There are other ways, but this is the only way I am going to type up.)

The LCD = 6, so I am going to change all the fractions to have a common denominator of 6. (Any common denom. will work.)

$$\frac{x}{3} + \frac{5}{3} = \frac{x}{2} + 2 \quad \Rightarrow \quad \frac{2x}{6} + \frac{10}{6} = \frac{3x}{6} + 2$$

Now multiply the left and the right side of the equation by 6: $6(\frac{2x}{6}) + 6(\frac{10}{6}) = 6(\frac{3x}{6}) + 6(2)$

$$\Rightarrow \quad 2x + 10 = 3x + 12$$

Subtracting $2x$ from both sides: $10 = x + 12$

Subtracting 12 from both sides: $x = -2$

Check: Left-side of equation: $\frac{-2+5}{3} = \frac{3}{3} = 1$

Right-side of equation: $\frac{-2}{2} + 2 = -1 + 2 = 1$ Yay!

2. Subtract $6x$ from both sides: $3y = 8 - 6x$ or $3y = -6x + 8$

Divide by 3 (all terms on both sides): $y = \frac{8}{3} - 2x$ or $y = -2x + \frac{8}{3}$

3. Using $d = rt$ or $t = \frac{d}{r}$: $90 = 25t$ or $t = \frac{90}{25} = \frac{18}{5}$ hours or $3\frac{3}{5}$ hours or 3.6 hours

4. Average Feb. Temp. in NYC = x Average Feb. Temp. in Seattle = $x + 8$

5. Unknown Number = x

Equation: $2 + x = 9x \quad \Rightarrow \quad x = \frac{1}{4}$

The number is $x = \frac{1}{4}$.