

Math 70 Quiz #6 Solutions

1. To check if $x = -1$ is a solution, we can plug in $x = -1$ and see if it makes the equation true.

$$\text{Left-side of equation: } \frac{1}{2}(-1) - \frac{1}{3} = -\frac{3}{6} - \frac{2}{6} = -\frac{5}{6}$$

$$\text{Left-side of equation: } \frac{1}{6}$$

Since the left and the right side are not equal, $x = -1$ is not a solution.

2. (a) Subtracting 9 from each side: $5 - 9 = x + 9 - 9 \Rightarrow -4 = x$

Check: $5 = -4 + 9 \checkmark$

So, $x = -4$ is the solution.

- (b) Adding 8 to both sides: $t - 8 + 8 = -1 + 8 \Rightarrow t = 7$

Check: $7 - 8 = -1 \checkmark$

So, $t = 7$ is the solution.

- (c) Two ways:

• Multiplying both sides by 4: $4(\frac{1}{4}x) = 4(12) \Rightarrow x = 48$

• Dividing both sides by $\frac{1}{4}$: $\frac{\frac{1}{4}x}{\frac{1}{4}} = \frac{12}{\frac{1}{4}} \Rightarrow x = 12 \div \frac{1}{4} = 12(\frac{4}{1}) = 48$

Check: $\frac{1}{4}(48) = \frac{48}{4} = 12 \checkmark$

So, $x = 48$ is the solution.

- (d) Combining like terms: $6x = 4$

Dividing both sides by 6: $\frac{6x}{6} = \frac{4}{6} \Rightarrow x = \frac{4}{6} = \frac{2}{3}$

Check: $9(\frac{2}{3}) - 3(\frac{2}{3}) = \frac{18}{3} - \frac{6}{3} = \frac{12}{3} = 4 \checkmark$

So, $x = \frac{2}{3}$ is the solution.

- (e) Simplifying the right-side: $2x + 7 = 1$

Subtracting 7 from both sides: $2x + 7 - 7 = 1 - 7 \Rightarrow 2x = -6$

Dividing both sides by 2: $\frac{2x}{2} = \frac{-6}{2} \Rightarrow x = -3$

Check: $2(-3) + 7 = -6 + 7 = 1 \checkmark$

So, $x = -3$ is the solution.