Solutions

1. **Solution:** $\frac{3}{4}x - \frac{3}{2} - \frac{1}{2}x - 3 = 5 \Rightarrow \frac{1}{4}x - \frac{9}{2} = 5 \Rightarrow \frac{1}{4}x = \frac{19}{2} \Rightarrow x = 38$.

2. **Solution:** $p - 0.20p = 48 \Rightarrow 0.80p = 48 \Rightarrow p = 60$ dollars.

3. **Solution:** $\dfrac{d}{12} + \dfrac{d}{24} = 1 \Rightarrow \dfrac{2d + d}{24} = 1 \Rightarrow 3d = 24 \Rightarrow d = 8$ miles.

4. **Solution:** $5 \cdot 86 = 430$ total after 5 quizzes. New total $= 6 \cdot 88 = 528$. So $x = 528 - 430 = 98$.

5. **Solution:** $P = 2L + 2W = 48$, $L = 2W + 3$. Then $2(2W + 3) + 2W = 48 \Rightarrow 6W + 6 = 48 \Rightarrow W = 7$, $L = 17$.

6. **Solution:** $n + (n+1) + (n+2) = 51 \Rightarrow 3n + 3 = 51 \Rightarrow 3n = 48 \Rightarrow n = 16$. Integers: $16, 17, 18$.

7. **Solution:** $3x - 8 = 2x + 7 \Rightarrow x = 15$.

8. **Solution:** $1.25g + 0.25 \leq 30 \Rightarrow 1.25g \leq 29.75 \Rightarrow g \leq 23.8$. Max whole $g = 23$ games.

9. **Solution:** $-3(2x - 5) < 9 \Rightarrow -6x + 15 < 9 \Rightarrow -6x < -6$. **Divide by -6 (negative) $\Rightarrow$ flip:** $x > 1$. Interval: $(1, \infty)$.

10. **Solution:** $\frac{1}{4}(5-2x) \geq 3 \Rightarrow 5-2x \geq 12 \Rightarrow -2x \geq 7$. **Divide by -2 (flip):** $x \leq -\frac{7}{2} = -3.5$. Interval: $(-\infty, -3.5]$.

11. **Solution:** $10-2d \leq -14 \Rightarrow -2d \leq -24$. **Divide by -2 (flip):** $d \geq 12$. After 12 days or more.

12. **Solution:** $-0.5(4x+6) \geq 7 \Rightarrow -2x-3 \geq 7 \Rightarrow -2x \geq 10$. **Divide by -2 (flip):** $x \leq -5$.

13. **Solution:** $\frac{x}{3} + \frac{5}{6} = \frac{2x}{3} - \frac{1}{2} \Rightarrow \times 6: \; 2x+5 = 4x-3 \Rightarrow 8 = 2x \Rightarrow x = 4$.

14. **Solution:** $7-2(3x-4) = 5x+1 \Rightarrow 7-6x+8 = 5x+1 \Rightarrow 15-6x = 5x+1 \Rightarrow 14 = 11x \Rightarrow x = \frac{14}{11}$.