Equations and Inequalities in One Variable

Module Quiz: B

1. What is \( \frac{7(5+2x)}{x^2} \) evaluated for \( x = -\frac{1}{2} \) and \( y = 2 \)?

2. Solve \( 7 + \frac{x}{4} = 5 \) for \( x \).

3. What is the best first step for solving the equation \( -1.8 = \frac{2x-18}{5} \)?
   - A Add 18 to both sides of the equation.
   - B Subtract 18 from both sides of the equation.
   - C Multiply both sides of the equation by 5.
   - D Divide both sides of the equation by 1.8.

4. What is the solution for the equation \( 0.7m - 3.2 = 2.5 + 1.2m \)?
   \( m = -14.4 \)

5. Graph the solutions of \( \frac{x}{4} + \frac{6}{4} > \frac{7}{2} \).

6. Choose True or False for each statement about the solutions of \( 8 - 5x > -9 \).
   - A The solutions are all less than -3. \( \text{O True} \) \( \text{O False} \)
   - B The solutions are all less than 3. \( \text{O True} \) \( \text{O False} \)
   - C The solution set includes 0. \( \text{O True} \) \( \text{O False} \)
   - D The solution set includes -5. \( \text{O True} \) \( \text{O False} \)

8. What are the solutions of \( 7(4-y) \leq 9y + 20 \)?
   \( y \geq \frac{1}{2} \)

9. The equation for finding the area of a trapezoid is \( A = \frac{1}{2}(b_1 + b_2)h \). What is the equation solved for \( h \)?
   - A \( h = \frac{A}{b_1 + b_2} \)
   - B \( h = \frac{2A}{b_1 + b_2} \)
   - C \( h = \frac{1}{2}(b_1 + b_2) \)
   - D \( h = 2A - b_1 - b_2 \)
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10. What is \(5r = \frac{s+2}{3}\) solved for \(s\)?
   \[ s = 15r - 2 \]

11. Simplify \(12x - 3(2x + y) - 5y\).
   \[ 6x - 8y \]

12. Solve \(2.5 = \frac{x}{6}\).
   \[ x = 15 \]

13. Solve \(5z - 12z - 10 = 18 + 7z\).
   \[ z = -2 \]

14. Solve the equation \(21p - 4 = \frac{12p + 7}{2}\).
   \[ p = -\frac{1}{2} \]

15. Solve \(5x + 2(3x - 7) = -20 + 11x + 6\).
   \[ \text{all real numbers} \]

16. A cell phone company charges $45 per month for unlimited calls and $0.25 per text message. Another cell phone company charges $0.15 per text message and $70 per month for unlimited calls.
   a. Write an equation to represent when the cost from both companies will be the same.
   \[ 45 + 0.25t = 70 + 0.15t \]
   b. Solve the equation and interpret the solution.
   \[ t = \]

17. Solve the inequality \(\frac{2}{3}p > -2\) and graph the solutions.
   \[ p > -3 \]

18. Solve and graph the solutions for \(8 - d \geq 3d + 4\).
   \[ d \geq -2 \]

19. Solve the inequality \(2(3x - 4) \geq 9x - 10\).
   \[ x \leq \frac{2}{3} \]

20. Solve \(2x + 3 > \frac{6x + 7}{3}\).
   \[ \text{all real numbers} \]

21. Juan is making birdhouses to sell at a craft show. The cost of making the birdhouses is $80 plus $6.25 per birdhouse. He will sell them for $16 each. Write and solve an equation to find the minimum number of birdhouses he must sell to make a profit.
   \[ 80 + 6.25x < 16x \]

22. The formula for finding the area of a circle is \(A = \pi r^2\). Solve the formula for \(r\).
   \[ r = \sqrt{\frac{A}{\pi}} \]

23. Solve \(9(t - 7) = u\) for \(t\).
   \[ t = \frac{u + 63}{9} \]