

Math 80 Pre-Test

1. **Simplify.** $15 - 10[-3^2 - 2(-7 + 2)]$

2. **Solve.** $-x - \frac{4}{5} = x + \frac{1}{2} + \frac{2}{5}$

3. **Identify a variable, write an equation, solve and state your answer.**

Find the original price of a suit if the sale price is \$46 after a 20% discount.

4. **Identify a variable, write an equation, solve and state your answer.**

A youth organization collected nickels and dimes for a charity drive. By the end of the 1-day drive, the youth had collected \$56.35. If there were three times as many dimes as nickels, how many of each type of coin was collected.

5. **Solve the following inequality. Graph each solution set and write it in interval notation.**

$$-24 < 5x + 1 \leq 6$$

6. **Find the equation of the line passing through the pair of points.**

$$(-1, 3) \text{ and } (-2, -5)$$

7. **Solve the system of equations by the substitution method.**

$$\begin{cases} \frac{1}{3}x - y = 2 \\ x - 3y = 6 \end{cases}$$

8. **Solve the system of equations by the addition method.**

$$\begin{cases} 3x + y = -11 \\ 6x - 2y = -2 \end{cases}$$

9. **Identify two variables, write two equations, solve, and state your answer.**

Ann Marie Jones has been pricing Amtrak train fares for a group trip to New York. Three adults and four children must pay \$159. Two adults and three children must pay \$112. Find the price of an adult's ticket and find the price of a child's ticket.

10. **Graph the solution of the system of linear inequalities. Label at least two points.**

$$\begin{cases} 3x + 2y > -8 \\ x \geq -4 \end{cases}$$

11. **Multiply.** $2(3x - 1)^2$

12. **Simplify.** $\frac{(-2xy^{-3})^{-3}}{(xy^{-1})^{-1}}$

13. **Factor completely.** $12x^3 - 34x^2 + 24x$

14. **Identify a variable(s), write an equation, solve, and state your answer.**

The width of a rectangle is 7 centimeters less than twice its length. Its area is 30 square centimeters. Find the dimensions of the rectangle.

15. **Divide.** $\frac{3x^2 - 10x + 8}{7x - 14} \div \frac{12 - 9x}{21}$

16. **Solve.** $\frac{2}{x-2} + 1 = \frac{x}{x+2}$

17. **Add and Simplify.** $\sqrt{36} - \sqrt{48} - 4\sqrt{3} - \sqrt{9}$

18. **Rationalize the denominator and simplify.**

$$\frac{3}{1 + \sqrt{7}}$$

19. **Solve.** $\sqrt{x+1} - x = -5$

20. **Use the square root property to solve.**

$$(3p - 1)^2 = 4$$