Math 60 Post-Test

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

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.**
   $-24<5x+1\le 6$

6. **Find the equation of the line passing through the pair of points.**
   $\left(-1,3\right)$ and $\left(-2,-5\right)$

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

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

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

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. $\dfrac{3x^2-10x+8}{7x-14} \div \dfrac{12-9x}{21}$

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

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.

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