Show all your work to receive credit and box or circle your final answers.

1) Is the equation \( \frac{2y}{3x} = \frac{6y^2}{4xy} \) a proportion? Why or why not?

2) Solve the proportion, \( \frac{2x-1}{18} = \frac{9}{54} \), for \( x \).

3) Write the fraction \( \frac{32a^3b^2}{24ab^4} \) in lowest terms.

4) Write the fraction \( \frac{x^2 + 4x - 77}{x^2 - 4x - 21} \) in lowest terms.

5) Multiply \( \frac{a^2 + a}{a^2 - 4} \cdot \frac{a^2 - a - 2}{a^2 + 2a + 1} \)

6) Divide \( \frac{x^2 - 1}{x^2 + 4x + 3} \div \frac{x - 1}{x^2 + 2x - 3} \)

7) Simplify \( \frac{a^2 + ab}{ab - b^2} \div \frac{a^2 + ab}{a^2 - b^2} \)

8) Add \( \frac{2x + 2}{x - 2} + \frac{2x}{2 - x} \).

9) Subtract \( \frac{3(x + 1)}{x - 2} - \frac{2(x - 3)}{x - 2} \).

10) Subtract \( \frac{y}{y + 3} - \frac{2y - 6}{y^2 - 9} \).

11) Simplify \( \frac{x}{4} + 2 \).

12) Solve for \( p \): \( \frac{p}{p - 5} = \frac{5}{p - 5} = 3 \)
13) Solve for $x$: \[ \frac{3}{x - 2} + \frac{1}{x} = \frac{2(3x + 2)}{x^2 - 2x} \]

14) You need to wash your car. In the past, it has taken you 65 minutes to complete the job. Your little brother has offered to help you wash your car today. It would take him 2 hours to complete the job. How long will it take to wash the car together? Round your answer to the nearest minute. (Use algebra method to receive credit.)

15) WIND SPEED A plane flies 500 miles downwind in the same amount of time as it takes to travel 420 miles upwind. If the plane can fly at 330 mph in still air, find the velocity of the wind. (Use algebra method to receive credit.)