

Name \_\_\_\_\_

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.****Simplify by removing a factor equal to 1.**

1)  $\frac{2x+3}{10x^2+21x+9}$

1) \_\_\_\_\_

2)  $\frac{y^2-6y-16}{y^2-2y-48}$

2) \_\_\_\_\_

**Multiply and simplify.**

3)  $\frac{k^2+10k+16}{k^2+14k+48} \cdot \frac{k^2+6k}{k^2-5k-14}$

3) \_\_\_\_\_

**Divide and simplify.**

4)  $\frac{y^3+7y}{y^2-49} \div \frac{y^2-3y-40}{y^2-2y-35}$

4) \_\_\_\_\_

**Perform the indicated operations. Write the answer in lowest terms.**

5)  $\frac{2x^2-7xy-4y^2}{y^2+2xy-3x^2} \cdot \frac{y^2+2xy-3x^2}{10x^2+7xy+y^2} \div \frac{3x^2-11xy-4y^2}{15x^2-2xy-y^2}$

5) \_\_\_\_\_

**Perform the indicated operation and simplify.**

6)  $\frac{3x+20}{x^2-2x-24} - \frac{x+12}{x^2-2x-24}$

6) \_\_\_\_\_

7)  $\frac{8x-1}{x^2+3x-4} - \frac{x+7}{x^2-16}$

7) \_\_\_\_\_

**Perform the indicated operations and simplify.**

8)  $\frac{7}{3m^2-5m-2} + \frac{2}{18m^2+3m-1} - \frac{8}{6m^2-13m+2}$

8) \_\_\_\_\_

**Simplify.**

9)  $\frac{2x + \frac{4y}{x}}{\frac{y}{3x^2} + \frac{1}{6}}$

9) \_\_\_\_\_

10)  $\frac{\frac{-2}{x+2} + \frac{5}{x+5}}{\frac{5}{x+5} - \frac{-2}{x+4}}$

10) \_\_\_\_\_

$$11) \frac{\frac{1}{x^2 + 7x + 6} + \frac{1}{x^2 - 1}}{\frac{1}{x^2 - 1} + \frac{1}{x^2 - 6x + 5}}$$

11) \_\_\_\_\_

**Solve.**

$$12) \frac{3}{x^2 - 11x + 30} - \frac{1}{x - 6} = \frac{1}{9x - 45}$$

12) \_\_\_\_\_

13) The sum of a number and 49 times its reciprocal is -14. Find the number.

13) \_\_\_\_\_

14) One maid can clean the house three times faster than another. Working together they can clean the entire house in 3 hours. How long would it take the faster maid cleaning alone?

14) \_\_\_\_\_

15) The speed of a stream is 5 mph. If a boat travels 86 miles downstream in the same time that it takes to travel 43 miles upstream, what is the speed of the boat in still water?

15) \_\_\_\_\_