

Simplify. **SHOW ALL WORK** and be sure all answers are **REDUCED**.

1.  $\frac{32x^6y^3}{2x^2y^2} \cdot \frac{x^4y^2}{24y^6}$

1. \_\_\_\_\_

\_\_\_\_\_  
Restrictions

2.  $\frac{x^2-9}{x^2+2x-8} \div \frac{x^2-3x}{3x^2+12x}$

2. \_\_\_\_\_

\_\_\_\_\_  
Restrictions

3.  $\frac{12x^{-3}}{3y^{-5}} \div \frac{24y^2}{15x^4}$

3. \_\_\_\_\_

4.  $\frac{4x-16}{4x} \cdot \frac{3x+6}{x^2-2x-8}$

4. \_\_\_\_\_

5.  $\frac{\frac{x^2+8x+16}{36x}}{\frac{x+4}{6x}} \cdot \frac{9}{x^2-16}$

5. \_\_\_\_\_

6.  $\frac{2}{x+4} - \frac{6}{x-5}$

6. \_\_\_\_\_

7.  $\frac{4x}{x^2-x-12} - \frac{5}{4-x}$

7. \_\_\_\_\_

8.  $\frac{2}{x+1} + \frac{2}{x-1} + \frac{4}{x^2-1}$

8. \_\_\_\_\_

9.  $\frac{\frac{5}{x} - \frac{15}{x^2}}{\frac{10}{x} + \frac{40}{x^2}}$

9. \_\_\_\_\_

10.  $\frac{\frac{2}{x} - 5}{\frac{6}{x} - 3}$

10. \_\_\_\_\_

$$11. \frac{4}{x^2-3x} + \frac{6}{3x-9}$$

11. \_\_\_\_\_

Solve each equation. Check for extraneous solutions. Round to the nearest hundredth, if necessary.

$$12. \frac{2x}{5} + \frac{1}{3} = \frac{y}{2} - \frac{1}{6}$$

$$13. \frac{1}{12} + \frac{1}{2x} = \frac{4}{3x^2}$$

12. \_\_\_\_\_

13. \_\_\_\_\_

$$14. \frac{5}{x+10} + \frac{2}{x^2+8x-20} = \frac{4}{x-2}$$

$$15. \frac{4}{x+3} = \frac{10}{2x-1}$$

14. \_\_\_\_\_

15. \_\_\_\_\_

$$16. \frac{21}{x^2-3x} - \frac{7}{x-3} = 1$$

$$17. \frac{1}{2x+2} + \frac{5}{x^2-1} = \frac{1}{x-1}$$

16. \_\_\_\_\_

17. \_\_\_\_\_

**EXTRA CREDIT**

$$\frac{\frac{7}{x-2}}{\frac{6}{x+2}} + \frac{\frac{8x+4}{x^2-5x+6}}{\frac{2x+1}{x-3}}$$

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