

Simplify by factoring then canceling

1. $\frac{10x^2}{25x}$

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

3. $\frac{7x + 42}{7x - 42}$

4. $\frac{g^2 + 7g - 18}{g^2 + 12g + 27}$

Multiply

5. $\frac{3ab}{a^3b^3} \cdot \frac{5a^2b^2}{15ab}$

6. $\frac{a^2 - b^2}{4} \cdot \frac{16}{a + b}$

7. $\frac{16ab^3}{25(4 - c)} \cdot \frac{5(c - 4)}{12a^2c^2}$

8. $\frac{e^2 - 25}{e^2 + e - 20} \cdot \frac{3e - 12}{e^2 - 10e + 25}$

Divide

9. $\frac{4yw}{k^3} \div \frac{yw^2}{2k^2}$

10. $\frac{x^2}{x^2 - 4} \div \frac{x}{x + 2}$

11. $\frac{a^2 - 81}{a^2 - 36} \div \frac{a - 9}{a + 6}$

12. $\frac{x^2 + x - 2}{x^2 + 5x + 6} \div \frac{x^2 + 2x - 3}{x^2 + 7x + 12}$

Add the following fractions. Simplify your answer completely by factoring and then canceling

13. $\frac{2x}{5} + \frac{4x}{5}$

14. $\frac{2x + 1}{3} + \frac{x + 4}{3}$

15. $\frac{3x}{x + h} + \frac{3h}{x + h}$

16. $\frac{4a - 6}{2a + 2} + \frac{6a - 8}{2a + 2}$

17. $\frac{a}{2} + \frac{a}{3}$

18. $\frac{7n}{2} - \frac{5n}{10}$

19. $\frac{x + 5}{7} + \frac{x + 2}{5}$

20. $\frac{5x - 6}{12} + \frac{x + 2}{4}$

21. $\frac{x - 1}{3} - \frac{x + 2}{4}$

22. $\frac{t - 1}{2} - \frac{2t - 3}{4}$

23. $\frac{5}{6ab} - \frac{7}{8a}$

24. $\frac{11}{10} - \frac{7}{2a} - \frac{6}{5a}$

$$25. \frac{5}{x+2} + \frac{7}{x+3}$$

$$26. \frac{3}{a-4} + \frac{8}{a-5}$$

$$27. \frac{4}{x+5} - \frac{6}{x-5}$$

$$28. \frac{2x+5}{x^2-9} + \frac{2}{x-3}$$

$$29. \frac{3x}{x+2} + \frac{3x}{x-2} + \frac{1}{x^2-4}$$

$$30. \frac{4x+3}{x^2-x-2} - \frac{x+3}{x-2}$$

Find the excluded value(s) for the following rational expressions. Do not simplify!

$$31. \frac{1}{x-3}$$

$$32. \frac{(x-4)(x+4)}{x(3x+4)}$$

$$33. \frac{(x+1)(x-2)}{(x-5)(x+4)}$$

$$34. \frac{x+7}{2x^2+7x+3}$$

Solve for x.(Don't forget to state the excluded values)

$$35. \frac{3}{5x} = \frac{2}{x-7}$$

$$36. \frac{1}{2x+5} = \frac{x}{11x+8}$$

$$37. \frac{5x}{x-2} = 7 + \frac{10}{x-2}$$

$$38. \frac{3x}{x+1} + \frac{-5}{2x} = \frac{3}{2x}$$

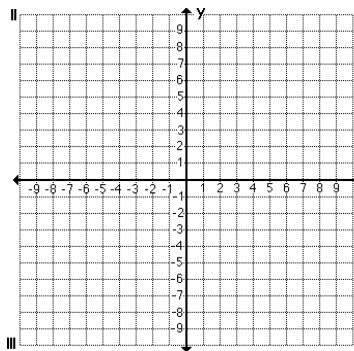
$$39. \frac{18}{x^2-3x} - \frac{6}{x-3} = \frac{5}{x}$$

$$40. \frac{3x}{x+1} = \frac{12}{x^2-1} + 2$$

Identify the Vertical and horizontal asymptote, graph the function and state the domain and range.

41.

$$y = \frac{2}{x} - 5$$



VA: _____

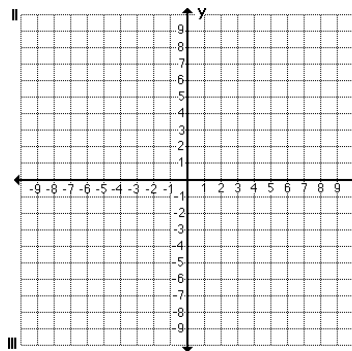
HA: _____

Domain: _____

Range: _____

42.

$$y = \frac{4}{x-2}$$



VA: _____

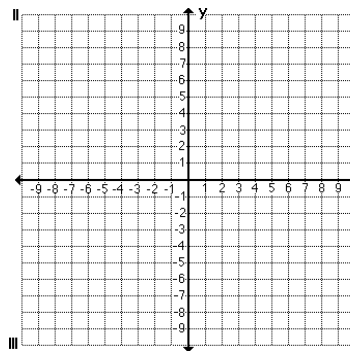
HA: _____

Domain: _____

Range: _____

43.

$$y = \frac{1}{x+6} - 3$$



VA: _____

HA: _____

Domain: _____

Range: _____

Matching Graphs Match the function with its graph.

44.

$$y = \frac{2}{x-3} + 1$$

45.

$$y = \frac{2}{x+3} + 1$$

46.

$$y = \frac{2}{x-3} - 1$$

