

Simplify each fraction.

Remember to look for easy number factors first.

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

$$2. \frac{15x^2y^3}{3xy} = 5xy^2$$

$$3. \frac{18a^2b}{24a^3} = \frac{3b}{4a}$$

$$4. \frac{(x+2)^2}{(x+2)} = x+2$$

$$5. \frac{2(x-5y)}{3(x-5y)^2} = \frac{2}{3(x-5y)}$$

$$6. \frac{4x+12}{3x+9} = \frac{4(x+3)}{3(x+3)} = \frac{4}{3}$$

$$7. \frac{24-8x}{3x-9} = \frac{-8(x-3)}{3(x-3)} = -\frac{8}{3}$$

$$8. \frac{(4x+12)^2}{3x+9} = \frac{(4(x+3))^2}{3(x+3)} = \frac{16(x+3)}{3}$$

$$9. \frac{32x^3-24x^2}{40x} = \frac{8(4x^3-3x^2)}{40x} = \frac{4x^2-3x}{5}$$

$$10. \frac{x^2+7x+12}{x+4} = \frac{(x+3)(x+4)}{x+4} = x+3$$

$$12. \frac{x^2+9x+20}{x^2+13x+36} = \frac{(x+4)(x+5)}{(x+4)(x+9)} = \frac{x+5}{x+9}$$

$$13. \frac{5x+35}{x^2+11x+28} = \frac{5(x+7)}{(x+4)(x+7)} = \frac{5}{x+4}$$

$$14. \frac{2x^2+2x-12}{3x^2+6x-24} = \frac{2(x^2+x-6)}{3(x^2+2x-8)} = \frac{2(x+3)(x-2)}{3(x+4)(x-2)} = \frac{2(x+3)}{3(x+4)}$$

$$15. \frac{y+3}{y^2-9} = \frac{y+3}{(y-3)(y+3)} = \frac{1}{y-3}$$

$$16. \frac{a+4}{5a^2-80} = \frac{a+4}{5(a^2-16)} = \frac{a+4}{5(a-4)(a+4)} = \frac{1}{5(a-4)}$$

$$17. \frac{2x^2+9x+10}{3x^2-x-14} = \frac{(2x+\frac{5}{1})(x+\frac{4}{2})}{(3x-7)(x+\frac{6}{3})} = \frac{(2x+5)(x+2)}{(3x-7)(x+2)} = \frac{2x+5}{3x-7}$$

$ac = 20 = 4 \times 5$
 $ac = -42 = -7 \times 6$

$$18. \frac{5x^2+4x-33}{7x^2+13x-24} = \frac{(5x-\frac{11}{1})(x+\frac{15}{5})}{(7x-8)(x+2\frac{1}{2})} = \frac{(5x-11)(x+3)}{(7x-8)(x+3)} = \frac{5x-11}{7x-8}$$

$ac = -165 = 15 \times -11$
 $ac = -168 = 21 \times -8$

$$19. \frac{6x^2+5x-6}{10x^2+23x+12} = \frac{(3x-\frac{2}{3})(2x+\frac{9}{3})}{(5x+\frac{8}{2})(2x+\frac{12}{5})} = \frac{(3x-2)(2x+3)}{(5x+4)(2x+3)} = \frac{3x-2}{5x+4}$$

$ac = -36 = 9 \times -4$
 $ac = 120 = 15 \times 8$

$$20. \frac{2x}{3} + \frac{3x}{5} = \frac{(2x) \times 5}{3 \times 5} + \frac{(3x) \times 3}{3 \times 5} = \frac{10x+9x}{15} = \frac{19x}{15}$$

$$21. \frac{2}{3x} + \frac{3x}{2} = \frac{4+9x^2}{6x}$$

$$22. \frac{3}{x-1} - \frac{2}{x+1} = \frac{3(x+1)-2(x-1)}{(x-1)(x+1)} = \frac{3x+3-2x+2}{x^2-1} = \frac{x+5}{x^2-1}$$

$$23. \frac{3}{x-1} - \frac{2}{x^2-1} = \frac{3(x+1)-2}{(x-1)(x+1)} = \frac{3x+1}{x^2-1}$$

$$24. \frac{x}{x^2+2x-24} + \frac{2x}{x-4} = \frac{x}{(x+6)(x-4)} + \frac{(x+6)2x}{(x+6)(x-4)} = \frac{2x^2+13x}{x^2+2x-24}$$

$$25. \frac{x+1}{x-1} + \frac{x-1}{x+1} = \frac{(x+1)^2 + (x-1)^2}{(x-1)(x+1)} = \frac{(x^2+2x+1) + (x^2-2x+1)}{x^2-1}$$

$$= \frac{2(x^2+1)}{x^2-1}$$