

Multiplying and Dividing Algebraic Fractions

Multiply.

$$1. \frac{x^2 + 7x + 12}{x^2 + 3x} \bullet \frac{x^2}{x^2 - 16}$$

$$2. (x^2 - 1) \bullet \frac{6}{2x^2 + 4x + 2}$$

$$3. \frac{3x - 3}{6} \bullet \frac{x}{x^2 - x}$$

$$4. \frac{10x + 5}{5x^2 + 5} \bullet \frac{2x^2 + x - 1}{4x^2 - 1}$$

$$5. (x^2 - 4) \bullet \frac{7}{2 - x}$$

$$6. \frac{10x - 4x^2}{4x^2 - 20x + 25} \bullet (2x^3 - 5x^2)$$

$$7. \frac{x^2 + x - 6}{x^2 - x - 12} \bullet \frac{x^2 + x - 20}{x^2 - 4x + 4}$$

$$8. \frac{3x^2}{x + 2} \bullet \frac{x^2 - 4}{3x}$$

$$9. \frac{5x^2}{x^2 - 4} \bullet \frac{x^2 + 4x + 4}{10x^3}$$

$$10. \frac{d^2 - 6d + 5}{d^3 - 9d^2 + 2d - 18} \bullet \frac{d^2 - 81}{7d^3 - 7d^2}$$

$$11. \frac{2x^2 - 5x - 12}{4x^2 + 8x + 3} \bullet \frac{2x^2 + 7x + 3}{x^2 - 16}$$

Answers: 1. $\frac{x}{x-4}$ 2. $\frac{3(x-1)}{x+1}$ 3. $\frac{1}{2}$ 4. $\frac{x+1}{x^2+1}$ 5. $-7x - 14$ 6. $-2x^3$

7. $\frac{x+5}{x-2}$ 8. $x(x-2)$ 9. $\frac{x+2}{2x(x-2)}$ 10. $\frac{(d-5)(d+9)}{7d^2(d^2+2)}$ 11. $\frac{x+3}{x+4}$

Divide.

$$12. \frac{5xy}{10xz} \div \frac{15y}{3z}$$

$$13. \frac{3}{x-2} \div \frac{6}{2-x}$$

$$14. \frac{2z-26}{z^2-5z} \div \frac{3z-39}{z^2+3z}$$

$$15. \frac{2x+6}{x-5} \div \frac{x^2-9}{x^2-10x+25}$$

$$16. \frac{x^2+3x+2}{x^2-3x+2} \div \frac{x+2}{x-1}$$

$$17. \frac{x^2+9x+18}{x^2+2x-15} \div \frac{2x+12}{3x+15}$$

$$18. \frac{x^2+3x-10}{7x+14} \div \frac{14x+70}{x^2-4}$$

$$19. \frac{11x^2-32x-3}{x^2-8x+16} \div \frac{11x^2+12x+1}{x^2-2x-3}$$

$$20. \frac{8x^2+6x+1}{4x^2+21x+5} \div \frac{x^2+5x+6}{x^2+7x+10}$$

$$21. \frac{2x^2-3x-27}{16x^2-70x-9} \div \frac{8x^2+23x-3}{8x^2+9x+1}$$

Answers: 12. $\frac{1}{10}$

13. $-\frac{1}{2}$

14. $\frac{2(z+3)}{3(z-5)}$

15. $\frac{2(x-5)}{x-3}$

16. $\frac{x+1}{x-2}$

17. $\frac{3(x+3)}{2(x-3)}$

18. $\frac{(x-2)(x-2)}{98}$

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

20. $\frac{2x+1}{x+3}$

21. $\frac{x+1}{8x-1}$