

MULTIPLY RATIONAL EXPRESSIONS

➤ Simplify the expression.

1) 
$$\frac{27a^2b^5}{16xy^2} \cdot \frac{20x^2y^3}{9a^2b}$$

2) 
$$\frac{15x^2y^4}{24ab^3} \cdot \frac{28a^2b^4}{35xy^4}$$

3) 
$$\frac{x^2}{4} \cdot \left(\frac{xy}{6}\right)^{-1} \cdot \frac{2y^2}{x}$$

4) 
$$\frac{t-2}{t+3} \cdot \frac{t^2+2t-3}{t^2-t-2}$$

5) 
$$\frac{3x-15}{4x^2-2x} \cdot \frac{20x^2-10x}{15x-75}$$

6) 
$$\frac{2x^2+4x}{8x^2-40x} \cdot \frac{6x^3-30x^2}{3x^2+6x}$$

7) 
$$\frac{x^2y^3}{x^2-4x-5} \cdot \frac{2x^2-13x+15}{x^4y^3}$$

8) 
$$\frac{x^2-3x+2}{x^2-8x+15} \cdot \frac{x^2+x-12}{8-2x-x^2}$$

9) 
$$\frac{x^{n+1}+2x^n}{4x^2-6x} \cdot \frac{8x^2-12x}{x^{n+1}-x^n}$$

10) 
$$\frac{12+x-6x^2}{6x^2+29x+28} \cdot \frac{2x^2+x-21}{4x^2-9}$$

11) 
$$\frac{x^{2n}-x^n-6}{x^{2n}+x^n-2} \cdot \frac{x^{2n}-5x^n-6}{x^{2n}-2x^n-3}$$

12) 
$$\frac{x^3-y^3}{2x^2+xy-3y^2} \cdot \frac{2x^2+5xy+3y^2}{x^2+xy+y^2}$$

$$13) \frac{x^4 - 5x^2 + 4}{3x^2 - 4x - 4} \cdot \frac{3x^2 - 10x - 8}{x^2 - 4}$$

$$14) \frac{(x+1)^2}{1-2x} \cdot \frac{2x-1}{x+1}$$

DIVIDE RATIONAL EXPRESSIONS

➤ Simplify the expression.

$$15) \frac{6x^2y^4}{35a^2b^5} \div \frac{12x^3y^3}{7a^4b^5}$$

$$16) \frac{12a^4b^7}{13x^2y^2} \div \frac{18a^5b^6}{26xy^3}$$

$$17) \frac{8t^2}{3} \div \frac{2t}{9}$$

$$18) \frac{2x-6}{6x^2-15x} \div \frac{4x^2-12x}{18x^3-45x^2}$$

$$19) \frac{4x^2-4y^2}{6x^2y^2} \div \frac{3x^2+3xy}{2x^2y-2xy^2}$$

$$20) \frac{x^2-8x+15}{x^2+2x-35} \div \frac{15-2x-x^2}{x^2+9x+14}$$

$$21) \frac{2x^2+13x+20}{8-10x-3x^2} \div \frac{6x^2-13x-5}{9x^2-3x-2}$$

$$22) \frac{x^{2n}+x^n}{2x-2} \div \frac{4x^n+4}{x^{n+1}-x^n}$$

$$23) \frac{2x^{2n}-x^n-6}{x^{2n}-x^n-2} \div \frac{2x^{2n}+x^n-3}{x^{2n}-1}$$

$$24) \frac{6x^2 + 6x}{3x + 6x^2 + 3x^2} \cdot \frac{x^2 - 1}{1 - x^3}$$

$$25) \frac{x^3 + y^3}{2x^3 + 2x^2y} \div \frac{3x^3 - 3x^2y + 3xy^2}{6x^2 - 6y^2}$$

ADD OR SUBTRACT RATIONAL EXPRESSIONS

➤ Simplify the expression.

$$26) \frac{3}{2xy} - \frac{7}{xy} - \frac{9}{2xy}$$

$$27) -\frac{3}{4x^2} + \frac{8}{4x^2} - \frac{3}{4x^2}$$

$$28) \frac{t+2}{3} + \frac{t-4}{6}$$

$$29) \frac{x}{x^2 - 3x + 2} - \frac{2}{x^2 - 3x + 2}$$

$$30) \frac{x+3}{5} - \frac{2x+1}{10}$$

$$31) \frac{z-1}{z} + \frac{z+1}{z^2}$$

$$32) \frac{2x+5}{4x^2} + \frac{2x-5}{10x}$$

$$33) ab^{-1} - a^{-1}b$$

$$34) 4s^{-2} - (4t)^{-2}$$

$$35) \frac{3}{2x^2y} - \frac{8}{5x} - \frac{9}{10xy}$$

$$36) \frac{2x-1}{12x} - \frac{3x+4}{9x}$$

$$37) \frac{3x+2}{4x^2y} - \frac{y-5}{6xy^2}$$

$$38) \frac{3a}{a-2} - \frac{5a}{a+1}$$

$$39) \frac{x}{2x-5} - \frac{2}{5x-2}$$

$$40) \frac{2}{x} - 3 - \frac{10}{x-4}$$

$$41) \frac{1}{2x-3} - \frac{5}{2x} + 1$$

$$42) \frac{1}{x^2-6x+9} - \frac{1}{x^2-9}$$

$$43) \frac{-3x^2+8x+2}{x^2+2x-8} - \frac{2x-5}{x+4}$$

$$44) \frac{x^n}{x^{2n}-1} - \frac{2}{x^n+1}$$

$$45) \frac{x^2+4}{4x^2-36} - \frac{13}{x+3}$$

$$46) \frac{3x-4}{4x+1} + \frac{3x+6}{4x^2+9x+2}$$

$$47) \frac{x+1}{x^2+x-12} - \frac{x-3}{x^2+7x+12}$$

$$48) \frac{x-2}{4x^2+4x-3} + \frac{3-2x}{6x^2+x-2}$$

$$49) \frac{x^2}{x^2+x-2} + \frac{3}{x-1} - \frac{4}{x+2}$$

$$50) \frac{2x^2-2x}{x^2-2x-15} - \frac{2}{x+3} + \frac{x}{5-x}$$

$$51) \frac{x^2-12}{x^4-16} + \frac{1}{x^2-4} - \frac{1}{x^2+4}$$