

Fundamental Operation

Exercise 19 (c)



04/10/21

2- Fill in the blank:

i) $4x \times 6x \times 2 = 48x^2$

ii) $3ab \times 6ax = 18a^2bx$

iii) $x \times 2x^2 \times 3x^3 = 6x^6$

iv) $5 \times 5a^3 = 25a^3$

v) $6 \times 6x^2 \times 6x^2y^2 = 216x^4y^2$

vi) $-8x \times -3x = 24x^2$

vii) $-5x - 3x \times 5x^2 = 75x^3$

viii) $8x - 4xy^2 \times 3x^3y^2 = -96x^4y^4$

ix) $-4x \times 5xy \times 3z = -60x^2yz$

x) $5x \times 2x^2y \times -7y^3 \times 2x^3y^2 = -140x^6y^6$

3- Find the value of:

i) $3x^3 \times 5x^4 = 15x^7$

ii) $5a^2 \times 7a^7 = 35a^9$

iii) $3abc \times 6ac^3 = 18a^2bc^4$

iv) $a^2b^2 \times 5a^3b^4 = 5a^5b^6$

v) $2x^2y^3 \times 5x^3y^4 = 10x^5y^7$

vi) $abc \times bcd = ab^2c^2d$

7- Multiply:

i) $x+2$ and $x+10$

$$= x(x+10) + 2(x+10)$$

$$= x \times x + x \times 10 + 2 \times x + 2 \times 10$$

$$= x^2 + 10x + 2x + 20$$

$$= x^2 + 12x + 20$$

ii) $x+5$ and $x-3$

$$= x(x-3) + 5(x-3)$$

$$= x \times x - x \times 3 + 5 \times x - 5 \times 3$$

$$= x^2 - 3x + 5x - 15$$

$$= x^2 + 2x - 15$$

iii) $x-5$ and $x+3$

$$\begin{aligned}
 &= x(x+3) - 5(x+3) \\
 &= x \times x + x \times 3 - 5 \times x + (-5) \times 3 \\
 &= x^2 + 3x - 5x - 15 \\
 &= x^2 - 2x - 15
 \end{aligned}$$

iv) $x-5$ and $x-3$

$$\begin{aligned}
 &= x(x-3) - 5(x-3) \\
 &= x \cdot x - x \cdot 3 - 5 \cdot x + 5 \cdot 3 \\
 &= x^2 - 3x - 5x + 15 \\
 &= x^2 - 8x + 15
 \end{aligned}$$

v) $2x+y$ and $x+3y$

$$\begin{aligned}
 &= 2x(x+3y) + y(x+3y) \\
 &= 2x \times x + 2x \times 3y + y \times x + y \times 3y \\
 &= 2x^2 + 6xy + xy + 3y^2 \\
 &= 2x^2 + 7xy + 3y^2
 \end{aligned}$$

vi) $3x-5y$ and $x+6y$

$$\begin{aligned}
 &= 3x(x+6y) - 5y(x+6y) \\
 &= 3x \times x + 3x \times 6y - 5y \times x + (-5y) \times 6y \\
 &= 3x^2 + 18xy - 5xy - 30y^2 \\
 &= 3x^2 + 13xy - 30y^2
 \end{aligned}$$

vii) $x+9y$ and $x-5y$

$$\begin{aligned}
 &= x(x-5y) + 9y(x-5y) \\
 &= x \times x - x \times 5y + 9y \times x - 9y \times 5y \\
 &= x^2 - 5xy + 9xy - 45y^2 \\
 &= x^2 + 4xy - 45y^2
 \end{aligned}$$

viii) $2x+5y$ and $2x+5y$

$$\begin{aligned}
 &= 2x(2x+5y) + 5y(2x+5y) \\
 &= 2x \times 2x + 2x \times 5y + 5y \times 2x + 5y \times 5y \\
 &= 4x^2 + 10xy + 10xy + 25y^2 \\
 &= 4x^2 + 20xy + 25y^2
 \end{aligned}$$

Exercise 19 (D)

2. Simplify :

$$i) 2x^5 \div x^2 = 2x^{(5-2)} = 2x^3$$

$$ii) 6a^8 \div 3a^3 = \frac{6a^8}{3a^3} = 2a^{(8-3)} = 2a^5$$

$$iii) 20xy \div -5xy = \frac{20xy}{5xy} = -4$$

$$iv) -24a^2b^2c^2 \div 6ab = \frac{-24a^2b^2c^2}{6ab} = -4abc^2$$

$$v) -5x^2y \div xy^2 = \frac{-5x^2y}{xy^2} = -\frac{5x}{y}$$

$$vi) 40p^3q^4r^5 \div 10p^3q = \frac{40p^3q^4r^5}{10p^3q} = 4q^3r^5$$

$$vii) -64x^4y^3z \div 4x^3y^2z = \frac{-64x^4y^3z}{4x^3y^2z} = -16xy$$

$$viii) 35xy^5 \div 7x^2y^4 = \frac{35xy^5}{7x^2y^4} = \frac{5y}{x}$$

3. Divide :

$$i) -\frac{3m}{4} \text{ by } 2m = -\frac{3m}{4} \times \frac{1}{2m} = \frac{3}{8}$$

$$ii) -15p^6q^8 \text{ by } -5p^6q^7 = \frac{-15p^6q^8}{-5p^6q^7} = 3q$$

$$iii) -21m^5n^7 \text{ by } 14m^2n^2 = \frac{-21m^5n^7}{14m^2n^2} = \frac{3m^3n^5}{2}$$

$$iv) 36a^4x^5y^6 \text{ by } 4x^2a^3y^2 = \frac{36a^4x^5y^6}{4x^2a^3y^2} = 9ax^3y^4$$

$$v) 20x^3a^6 \text{ by } 5xy = \frac{20x^3a^6}{5xy} = \frac{4x^2a^6}{y}$$

$$vi) \frac{28a^2b^3}{c^2} \text{ by } 4abc = \frac{28a^2b^3}{4abc} = \frac{7ab^2}{c^3}$$

$$vii) \frac{2a^2}{9b^2} \text{ by } \frac{3b}{2a} = \frac{2a^2}{9b^2} \times \frac{3b}{2a} = \frac{4a^3}{27b^3}$$

$$viii) -\frac{5.5x^2}{y} \text{ by } \frac{11x}{y} = -\frac{5.5x^2}{y} \times \frac{y}{11x} = -0.5x$$

$$ix) \frac{64x^2y^2}{z^2} \text{ by } \frac{8xy}{z} \times \frac{z}{8xy} = \frac{8xy}{z}$$

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