H.W
04.10.21

Exercise 19(C)

2. Fill in the blanks.

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

Sol- $(4 \times 6 \times 2) \times (x \times x)$

$= 48x^2$

ii) $3ab \times 6ax$

Sol- $(3 \times 6) \times (a \times a) \times b \times x$

$= 18a^2bx$

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

Sol- $(2 \times 3) \times (x \times x^2 \times 3x^3)$

$= 6x^6$

iv) $5 \times 5a^3$

Sol- $(5 \times 5) \times a^3$

$= 25a^3$

v) $6 \times 6x^2 \times 6x^2y^2$

Sol- $(6 \times 6 \times 6) \times (x^2 \times x^2) \times y^2$

$= 216x^4y^2$

vi) $-8x \times -3x$

Sol- $(-8 \times -3) \times (x \times x)$

$= 24x^2$

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

Sol- $(-5 \times -3 \times 5) \times (x \times x^2)$

$= 75x^3$

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

Sol- $(8 \times -4 \times 3) \times (x \times x^3) \times (y^2 \times y^2)$

$= -96x^4y^4$

ix) $-4x \times 5xy \times 3z$

Sol- $(-4 \times 5 \times 3) \times (x \times x) \times y \times z$

$= -60x^2yz$

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

Sol- $(5 \times 2 \times -7 \times 2) \times (x \times x^2 \times x^3) \times (y \times y^3 \times y^2)$

$= -140 \times (x^{1+2+3}) \times (y^{1+3+2}) = -140x^6y^6$

3. Find the value of:

i) $3x^3 \times 5x^4$

Sol- $(3 \times 5) \times (x^3 \times x^4)$

$= 15x^7$

ii) $5a^2 \times 7a^7$

Sol- $(5 \times 7) \times (a^2 \times a^7)$

$= 35a^9$

iii) $3abc \times 6ac^3$

Sol- $(3 \times 6) \times (a \times a) \times b \times (c \times c^3)$

$= 18a^2bc^4$

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

Sol- $5 \times (a^2 \times a^3) \times (b^2 \times b^4)$

$= 5a^5b^6$

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

Sol- $(2 \times 5) \times (x^2 \times x^3) \times (y^3 \times y^4)$

$= 10x^5y^7$

vi) $abc + bcd$

Sol- $a \times (b \times b) \times (c \times c) \times d$

$= ab^2c^2d$

7. Multiply:

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

Sol- $(x+2)(x+10)$

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

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

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

$= x^2 + 12x + 20$

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

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

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

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

$= x^2 + 2x - 15$

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

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

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

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

$= x^2 - 2x - 15$

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

Sol- $(x-5)(x-3)$

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

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

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

$= x^2 - 8x + 15$

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

Sol- $(2x+y)(x+3y)$

$= 2x(x+3y) + y(x+3y)$

$= 2x \cdot x + 2x \cdot 3y + y \cdot x + y \cdot 3y$

$= 2x^2 + 6xy + xy + 3y^2$

$= 2x^2 + 7xy + 3y^2$

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

Sol- $(3x-5y)(x+6y)$

$= 3x(x+6y) - 5y(x+6y)$

$= 3x \cdot x + 3x \cdot 6y - 5y \cdot x - 5y \cdot 6y$

$= 3x^2 + 18xy - 5xy - 30y^2$

$= 3x^2 + 13xy - 30y^2$

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

Sol- $(x+9y)(x-5y)$

$= x(x-5y) + 9y(x-5y)$

$= x \cdot x - x \cdot 5y + 9y \cdot x - 9y \cdot 5y$

$= x^2 - 5xy + 9xy - 45y^2$

$= x^2 + 4xy - 45y^2$

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

Sol- $(2x+5y)(2x+5y)$

$= 2x(2x+5y) + 5y(2x+5y)$

$= 2x \cdot 2x + 2x \cdot 5y + 5y \cdot 2x + 5y \cdot 5y$

$= 4x^2 + 10xy + 10xy + 25y^2$

$= 4x^2 + 20xy + 25y^2$

Exercise 19(D)

2. Simplify :

i) $2x^5 \div x^2$

Sol- $\frac{2x^5}{x^2} = 2x^{5-2}$

$= 2x^3$

ii) $6a^8 \div 3a^3$

Sol- $\frac{6a^8}{3a^3} = \frac{2a^{8-3}}{1}$

$= 2a^5$

iii) $20xy \div -5xy$

Sol- $\frac{-20xy}{5xy}$

$= -4$

iv) $-24a^2b^2c^2 \div 6ab$

Sol- $\frac{-24a^2b^2c^2}{6ab} = -4a^{2-1}b^{2-1}c^2$

$= -4a^1b^1c^2 = -4abc^2$

v) $-5x^2y \div xy^2$

Sol- $\frac{-5x^2y}{xy^2} = \frac{-5x^{2-1}y}{y \times y}$

$= \frac{-5x^1}{y} = \frac{-5x}{y}$

vi) $40p^3q^4r^5 \div 10p^3q$

Sol- $\frac{40p^3q^4r^5}{10p^3q} = 4q^{4-1}r^5$

$= 4q^3r^5$

vii) $-64x^4y^3z \div 4x^3y^2z$

Sol- $\frac{-64x^4y^3z}{4x^3y^2z} = -16x^{4-3}y^{3-2}$

$= -16x^1y^1 = -16xy$

viii) $35xy^5 \div 7x^2y^4$

Sol- $\frac{35xy^5}{7x^2y^4} = \frac{5xy^{5-4}}{x \times x}$

$= \frac{5y^1}{x} = \frac{5y}{x}$

3. Divide:

i) $\frac{-3m}{4}$ by $2m$

Sol- $\frac{-3m}{4} \div 2m$

$= \frac{-3m}{4} \times \frac{1}{2m} = \frac{-3}{8}$

ii) $-15p^6q^8$ by $-5p^6q^7$

Sol- $\frac{-15p^6q^8}{-5p^6q^7} = 3q^{8-7}$

$= 3q^1 = 3q$

iii) $-21m^5n^7$ by $14m^2n^2$

Sol- $\frac{-21m^5n^7}{14m^2n^2} = \frac{-3}{2}m^{5-2}n^{7-2}$

$= -\frac{3}{2}m^3n^5$

iv) $36a^4x^5y^6$ by $4x^2a^3y^2$

Sol- $\frac{36a^4x^5y^6}{4a^3x^2y^2} = 9a^{4-3}x^{5-2}y^{6-2}$

$= 9a^1x^3y^4 = 9ax^3y^4$

v) $20x^3a^6$ by $5xy$

Sol- $\frac{20x^3a^6}{8xy} = \frac{4x^{3-1}a^6}{y}$

$= \frac{4x^2a^6}{y}$

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

Sol- $\frac{28a^2b^3}{c^2} \div \frac{4abc}{1}$

$= \frac{28a^2b^3}{c^2} \times \frac{1}{4abc}$

$= \frac{7a^{2-1}b^{3-1}}{c^2 \times c} = \frac{7ab^2}{c^3}$

vii) $\frac{2a^2}{9b^2}$ by $\frac{3b}{2a}$

Sol- $\frac{2a^2}{9b^2} \div \frac{3b}{2a}$

$= \frac{2a^2}{9b^2} \times \frac{2a}{3b}$

$= \frac{2 \times 2 \times a^{2+1}}{9 \times 3b^{2+1}}$

$= \frac{4a^3}{27b^3}$

viii) $\frac{-5.5x^2}{y}$ by $\frac{11x}{y}$

Sol- $\frac{-5.5x^2}{y} \div \frac{11x}{y}$

$= \frac{-55x^2}{10y} \times \frac{y}{11x}$

$= \frac{-55x \cdot x}{10 \cdot y} \times \frac{y}{11 \cdot x}$

$= \frac{-5x}{10}$

$= -\frac{1}{2}x = \frac{-x}{2} = 0.5x$

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

Sol- $\frac{64x^2y^2}{z^2} \div \frac{8xy}{z}$

$= \frac{64x^2y^2}{z^2} \times \frac{z}{8xy}$

$= \frac{64x \cdot x \cdot y \cdot y}{z \cdot z} \times \frac{z}{8 \cdot x \cdot y}$

$= \frac{8xy}{z}$