Homwork

Exercise - 19 (c)

Date 4·10·21

2. Fill in the blanks.

(i) $4x \times 6x \times 2 = \underline{48x^2}$

(ii) $3ab \times 6ax = \underline{18a^2bx}$

(iii) $x \times 2x^2 \times 3x^3 = \underline{6x^6}$

(iv) $5 \times 5a^3 = \underline{25a^3}$

(v) $6 \times 6x^2 \times 6x^2y^2 = \underline{216x^4y^2}$

(vi) $-8x \times -3x = \underline{24x^2}$

(vii) $-5x - 3x \times 5x^2 = \underline{75x^3}$

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

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

(x) $5x \times 2x^2y \times -7y^3 \times 2x^3y^2 = \underline{-140x^6y^6}$

3. Find the value of:

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

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

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

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

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

(vi) $abc \times bcd$

Solution:

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

$= 3 \times 5x^{3+4}$

$= 15x^7$

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

$= 5 \times 7 \times a^{2+7}$

$= 35a^9$

(iii) $3abc \times 6ac^3$
$= 3 \times 6 \times a^{1+1} \times b \times c^{1+3}$
$= 18a^2bc^4$

(iv) $a^2b^2 \times 5a^3b^4$
$= 1 \times 5 \times a^{2+3} \times b^{2+4}$
$= 5a^5b^6$

(v) $2x^2y^3 \times 5x^3y^4$
$= 2 \times 5 \times x^{2+3} \times y^{3+4}$
$= 10x^5y^7$

(vi) $abc \times bcd$
$= a \times b^{1+1} \times c^{1+1} \times d$
$= ab^2c^2d$

7. Multiply:

(i) $x+2$ and $x+10$
(ii) $x+5$ and $x-3$
(iii) $x-5$ and $x+3$
(iv) $x-5$ and $x-3$
(v) $2x+y$ and $x+3y$
(vi) $3x-5y$ and $x+6y$
(vii) $x+9y$ and $x-5y$
(viii) $2x+5y$ and $2x+5y$

Solution:

(i) $(x+2) \times (x+10)$
$= x \times (x+2) + 10x(x+2)$
$= x^2 + 2x + 10x + 20$
$= x^2 + 12x + 20$

(ii) $(x+5) \times (x-3)$
$= x \times (x+5) - 3 \times (x+5)$
$= x^2 + 5x - 3x - 15$
$= x^2 + 2x - 15$

(iii) $(x-5) \times (x+3) = x \times (x-5) + 3(x-5)$
$= x^2 - 5x + 3x - 15$
$= x^2 - 2x - 15$

(iv) $(x-5) \times (x-3) = x \times (x-5) - 3 \cdot (x-5)$
$= x^2 - 5x - 3x + 15$
$= x^2 - 8x + 15$

(v) $(2x+y) \cdot (x+3y)$
$= x \cdot (2x+y) + 3y(2x+y)$
$= 2x^2 + xy + 6xy + 3y^2$
$= 2x^2 + 7xy + 3y^2$

(vi) $(3x-5y) \times (x+6y)$
$= x \times (3x-5x) + 6y(3x-5y)$
$= 3x^2 - 5xy + 18xy - 30y^2$
$= 3x^2 + 13xy - 30y^2$

(vii) $(x+9y) \times (x-5y)$
$= x \times (x+9y) - 5xy(x+9x)$
$= x^2 + 9xy - 5xy - 45y^2$
$= x^2 + 4xy - 45y^2$

(viii) $(2x+5y) \times (2x+5y)$

$= 2x \cdot (2x+5y) + 5y \times (2x+5y)$

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

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

Exercise - 19 (D)

2. Simplify.

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

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

(iii) $20xy \div -5xy$

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

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

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

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

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

Solution:

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

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

(iii) $20xy \div -5xy = \frac{4 \times 5 \times x \times y}{-5 \times x \times y}$

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

$= \frac{-4 \times 6 \times a^{2-1}b^{2-1}c^2}{6} = -4abc^2$

(v) $-5x^2y \div xy^2 = \frac{-5x^{2-1}}{y^{2-1}} = \frac{-5x}{y}$

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

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

$= 4 \times q^{4-1} \times r^5 = 4q^3r^5$

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

$= \frac{4 \times 4 \times 4 \times x^4 \times y^3 \times z}{4 \times x^3 y^2 \times z}$

3. Divide :

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

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

(iii) $-21m^5n^7$ by $4m^2n^2$

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

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

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

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

(viii) $\frac{-5 \cdot 5x^2}{y}$ by $\frac{11x}{y}$

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

Solution :

(i) $\frac{-3m}{4} \div 2m = \frac{-3 \times m}{4 \times 2 \times m} = \frac{-3}{8}$

(ii) $-15p^6q^8 \div -5p^6q^7 = \frac{5 \times 3 \times p^6 \times q^8}{-5 \times p^6 \times q^7} = 3q^{8-7-3}$

(iii) $-21m^5n^7 \div 14m^2n^2$

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

(iv) $36a^4x^5y^6 \div 4x^2a^3y^2$

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

(v) $20x^3a^6 \div 5xy = \frac{4 \times 5 x^3 a^6}{5xy}$

$= \frac{4 \times 5 \times x^{3-1} \times a^6}{5xy} = \frac{4x^2a^6}{y}$

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

$= \frac{4 \times 7 \times a^{2-1} \times b^{3-1}}{4 \times c^{3+1}} = \frac{7ab^2}{c^3}$

(vii) $\frac{2a^2}{9b^2} \div \frac{3b}{2a} = \frac{2a^2}{9b^2} \times \frac{2a}{3b}$

$= \frac{2 \times 2 \times a^{2+1}}{9 \times 3b^{2+1}} = \frac{4a^3}{27b^3}$

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

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

$= 8x^{2-1}y^{2-1} = \frac{8xy}{z}$