AW 05/10/21

Exercise-19C

3) Find the value of:-

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

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

$= 15x^7$

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

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

$= 35a^9$

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

$= 3 \times 6 a^{1+1} bc^{1+3}$

$= 18 a^2 bc^4$

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

$= 1 \times 5 a^{2+3} b^{2+4}$

$= 5a^5b^6$

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

$= 2 \times 5 x^{2+3} y^{3+4}$

$= 10x^5y^7$

vi) $abc \times bcd$

$= 1 \times 1 ab^{1+1} c^{1+1} d$

$= ab^2c^2d$

5) Multiply:-

i) $-x + y - z \times -2x$

$= (+x \times +2x) + (y \times -2x) - (z \times -2x)$

~~[illegible]~~

$= (2x^{1+1}) + (-2xy) - (-2xz)$

$= 2x^2 - 2xy + 2xz$

ii) $xy - yz$ and x^2yz^2

$= (xy - yz \times x^2yz^2$

$= (xy \times x^2yz^2) - (yz \times x^2yz^2)$

$= (x^{2+1}y^{1+1}z^2) - (y^{1+1}z^{1+2}x^2)$

$= (x^3y^2z^2) - (y^2z^3x^2)$

$= x^3y^2z^2 - x^2y^2z^3$

iii) $2xyz + 3xy \times -2y^2z$

$= (2xyz \times -2y^2z) + (3xy \times -2y^2z)$

$= (-4xy^{1+2}z^{1+1}) + (-6xy^{1+2}z)$

$= -4xy^3z^2 + -6xy^3z$

iv) $-3xy^2 + 4x^2y \times -xy$

$= (+3xy^2 \times +xy) + (4x^2y \times -xy)$

$= (3x^{1+1}y^{2+1}) + (-4x^{1+2}y^{1+1})$

$= 3x^2y^3 - 4x^3y^2$

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

$= (4xy \times -x^2y) - (3x^2y^2 \times 4xy)$

$= (-4x^{2+1}y^{1+1}) - (12x^{2+1}y^{2+1})$

$= -4x^3y^2 - 12x^3y^3$

7) Multiply :-

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

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

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

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

$= x^2 + 12x + 20$

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

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

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

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

$=x^2+2x-15$

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

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

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

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

$=x^2-2x-15$

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

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

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

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

$=x^2-8x+15$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Exercise - 19 D

2) Simplify :-

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

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

$= 2x^{5-2}$

$= 2x^3$

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

$= \frac{6a^8}{3a^3}$

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

$= 2a^5$

iii) $20xy \div -5xy$

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

$= -4$

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

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

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

$= -4abc^2$

v) $-5x^2y \div xy^3$

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

$= -5x^{2-1}y^{1-2}$

$= -5xy^{-1}$

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

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

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

$= 4q^3r^5$

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

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

$= -16x^{4-3}y^{3-2}z^{1-1}$

$= -16xy$

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

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

$= 5\frac{1}{x^{2-1}}y^{5-4}$

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

3) Divide:-

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

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

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

$= -\frac{3}{8}$

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

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

$= 3p^{6-6}q^{8-7}$

$= 3q$

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

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

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

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

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

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

$= 9a^{4-3}x^{5-2}y^{6-2}$

$= 9ax^3y^4$

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

$= \frac{20x^3a^6}{5xy}$

$= \frac{4x^{3-1}a^6}{y}$

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

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

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

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

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

$= \frac{7axaxbxb}{cxcxc}$

$= \frac{7ab^2}{c^3}$

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

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

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

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

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

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

$= \frac{-5.5x^2}{y} \times \frac{y}{11x}$

$= \frac{-5.5xx}{11x}$

$= -0.5x$

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

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

$= \frac{\overset{8}{\cancel{64}} \times \cancel{x} \times \cancel{y} \times xy}{z \times \cancel{z}} \times \frac{\cancel{z}}{\underset{1}{\cancel{8}} \times \cancel{x} \times \cancel{y}}$

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