HW
4.9.21

19.C

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

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

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

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

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

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

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

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

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

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

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

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

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

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

v) $2x^3y^3 \times 5x^3y^4 = (2 \times 5) \times (x^3 \times x^3) \times (y^3 \times y^4)$
$= 10 \times x^6 \times y^7 = 10x^6y^7$

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

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

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

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

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

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

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

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

viii) $(2x+5y) \times (2x+5y)$
$= 2x(2x+5y) + 5y(2x+5y)$
$= 4x^2 + 10xy + 10xy + 25y^2$
$= 4x^2 + 20xy + 25y^2$

Ex - 19 (D)

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

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

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

iv) $-24a^2b^2c^2 \div 6ab = \frac{-24 \times a^2 \times b^2 \times c^2}{6 \times a \times b} = 4a^{2-1}b^{2-1}c^2 = 4abc^2$

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

vi) $40p^3q^4r^5 \div 10p^3q = \frac{40 \times p^3 \times q^4 \times r^5}{10 \times p^3 \times q} = 4pq^{4-1}r^5 = 4q^3r^5$

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

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

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

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

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

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

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

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

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

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

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

$= \frac{-5.5x^2}{11x} = \frac{-5.5x}{11} = -0.5x$

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