

Answer the following questions.

Question1 (1) Choose the correct answer.

(K1. Marks: 4)

1. The degree of the polynomial $x^2 - 4x - 1$ is.

- (A) 2 (B) 1 (C) 0 (D) 4

2. The multiplication inverse of $\frac{7}{5}$ is

- (A) $\frac{7}{5}$ (B) $-\frac{7}{5}$ (C) $\frac{5}{7}$ (D) $-\frac{5}{7}$

3. $x^2 + 25 = \dots\dots$

- (A) $(x - 5)(x + 5)$ (B) $(x - 5)^2$ (C) $(x + 5)^2$ (D) Not Factoring

4. $x^2 + 8x + 18 = \dots\dots$

- (A) $(x - 4)^2$ (B) $(x + 4)^2$ (C) $(x + 4)^2 + 2$ (D) $(x + 2)(x + 9)$

(2) Perform, evaluate, simplify and express answers using positive exponents.

(K2,K3. Marks: 4)

1. $2x^2\sqrt{25x^{12}y^{16}} = 2x^2(5x^6y^8)$

(0.5 marks)

$$= 10x^8y^8$$

(0.5 marks)

2. $8x^3 - 27 = ((2x)^3 - 3^3) = (2x - 3)(4x^2 + 6x + 9)$

(1 marks)

3. $2\sqrt{12} - 3\sqrt{3} = 2\sqrt{4 \times 3} - 3\sqrt{3} = 4\sqrt{3} - 3\sqrt{3}$

(0.5 marks)

$$= \sqrt{3}$$

(0.5 marks)

4. $\left(\frac{12x^2y^{-3}z^{-3}}{15x^{-2}y^{-2}z^{-3}}\right)^{-1} = \left(\frac{4x^4}{5y}\right)^{-1}$

(0.5 marks)

$$= \frac{5y}{4x^4}$$

(0.5 marks)

Question2

(S1,S2. 6 Marks)

(1) Evaluate, simplify and express answers using positive exponents.

(S1 2 Marks)

1. $\frac{4}{5} \div \left(\frac{1}{3} + \frac{4}{3}\right)^{-1} = \frac{4}{5} \div \left(\frac{5}{3}\right)^{-1} = \frac{4}{5} \div \frac{3}{5}$

(0.5 marks)

$$= \frac{4}{5} \times \frac{5}{3} = \frac{4}{3}$$

(0.5 marks)

2. $-8x^2 - \frac{-1}{(3x)^{-2}} = -8x^2 + (3x)^2 = -8x^2 + 9x^2$

(0.5 marks)

$$= x^2$$

(0.5 marks)

(2) Multiply.

(S2 4 Marks)

$$(2x - 3)(x^3 - x^2 + 3x + 2) = 2x(x^3 - x^2 + 3x + 2) - 3(x^3 - x^2 + 3x + 2)$$

(0.5 marks)

$$= 2x^4 - 2x^3 + 6x^2 + 4x - 3x^3 + 3x^2 - 9x - 6$$

(1 marks)

$$= 2x^4 - 5x^3 + 9x^2 - 5x - 6$$

(0.5 marks)

(3) Factor and simplify.

$$\frac{2x^2 + 3x - 5}{(x - 1)} = \frac{(2x + 5)(x - 1)}{(x - 1)}$$

(1.5 marks)

$$= \frac{(2x + 5)\cancel{(x - 1)}}{\cancel{(x - 1)}} = 2x + 5$$

(0.5 marks)

Question3

(S3,S4. 6 Marks)

(1) Factor by group.

(S3 2 Marks)

$$x^2 + 4x - x - 4 = x(x + 4) - (x + 4)$$

(1 marks)

$$= (x + 4)(x - 1)$$

(1 marks)

(2) Solve the following equation.

(S4 4 Marks)

$$-2 + \frac{2(3x + 2)}{2} = \frac{4(3x - 2)}{2} + 1$$

(Mark: 2)

$$-2 + 3x + 2 = 2(3x - 2) + 1$$

(0.5 marks)

$$3x = 6x - 4 + 1$$

(0.5 marks)

$$3x - 6x = -3$$

$$-3x = -3$$

(0.5 marks)

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

$$x = 1$$

(0.5 marks)

(3) Solve the following equation for x , and y .

$$3x - \frac{2y}{3} = 5$$

(Mark: 2)

(0.25 marks)	$3x = 5 + \frac{2y}{3}$	$-\frac{2y}{3} = 5 - 3x$	(0.25 marks)
(0.25 marks)	$3x = \frac{15 + 2y}{3}$	$-2y = 3(5 - 3x)$	(0.5 marks)
(0.25 marks)	$x = \frac{15 + 2y}{9}$	$y = \frac{3(5 - 3x)}{-2}$	(0.25 marks)
(0.25 marks)	$x = \frac{15 + 2y}{9}$		

GOOD LUCK

SOLUTION