

Q 1 Find the distance between :

(1) $5, -2$ (7)

(2) $-7, 4$ (11)

(3) $-8, -3$ (5)

Q 2 Evaluate the following expressions :

(1) $2x^3 - 5x^2 + 8$ where $x = -4$ (-200)

(2) $\frac{|3x - 2y|}{y - x} + 3xy$ where $x = -2, y = -1$ (10)

Q 3 Simplify the following expressions :

(1) $8 - [3x - (x + 4) - 2]$ ($-2x + 14$)

(2) $7 - 2[3(5 - 2x) + x + 4]$ ($10x - 31$)

Q 4

Simplify :

$$(1)(-2x^2y^{-3})^3(3xy^2)^2$$

$$\left(\frac{-72x^8}{y^5}\right)$$

$$(2)\left(\frac{24x^3y^{-1}}{32x^5y^{-4}}\right)^{-3}$$

$$\left(\frac{64x^6}{27y^9}\right)$$

$$(3)\sqrt{3x^3} \cdot \sqrt{6x^2}$$

$$(3x^2\sqrt{2x})$$

$$(4)\frac{\sqrt{45x^3y^2}}{\sqrt{5xy}} \text{ assume that } x \text{ and } y \text{ are nonnegative}$$

$$(3x\sqrt{y})$$

$$(5)\frac{\sqrt[3]{24x^5}}{\sqrt[3]{3x}}$$

$$(2x\sqrt[3]{x})$$

$$(6)\sqrt[9]{x^6y^3}$$

$$\left(\sqrt[3]{x^2y}\right)$$

Q 5 Determine the degree :

(1) $5x^2 - 2x^5 + 4x^3 - x + 2$ (5)

(2) $3xy^5 + 2x^2y^3 - x^3y$ (6)

Q 6 Simplify :

(1) $(3x^2 - 2x + 7) - (x^2 + 5x - 2y + 10)$ $(2x^2 - 7x + 2y - 3)$

(2) $(3x - 4)(x^2 - 2x + 5)$ $(3x^3 - 10x^2 + 23x - 20)$

(3) $(3x - 4y)(3x + 4y)$ $(9x^2 - 16y^2)$

(4) $(3x - 4)^2$ $(9x^2 - 24x + 16)$

(5) $(2x + 5)^3$ $(8x^3 + 60x^2 + 150x + 125)$

Q 7

Factor completely :

(1) $x^2 - 25$

$(x + 5)(x - 5)$

(2) $3x^2 + 15x$

$3x(x + 5)$

(3) $x^3 + 8$

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

(4) $2x^3 - 18x$

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

(5) $x^2 - 5x + 6$

$(x - 3)(x - 2)$

(6) $x^4 - 16$

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

(7) $3x^2 + 5x - 42$

$(3x + 14)(x - 3)$

(8) $8x^3 - 125$

$(2x - 5)(4x^2 + 10x + 25)$

(9) $x^2 - 10x + 25$

$(x - 5)^2$

(10) $x^3 + 2x^2 - 9x - 18$

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

(11) $2x^3 + 5x^2 + 8xx + 20$

$(2x + 5)(x^2 + 4)$

Q 8

Simplify :

$$(1) \frac{x^2-4}{x^2+5x+6} \cdot \frac{5x+15}{x^2-x-2}$$

$$\left(\frac{5}{x+1}\right)$$

$$(2) \frac{x^3-8}{x^2+x-6} \div \frac{x^2+2x+8}{x+3}$$

$$(1)$$

$$(3) \frac{7x-8}{x^2+2x-15} + \frac{3}{x+5}$$

$$\left(\frac{10x-17}{(x+5)(x-3)}\right)$$

$$(4) \frac{3}{x+5} - \frac{2}{x-7}$$

$$\left(\frac{x-31}{(x+5)(x-7)}\right)$$

Q1 Choose the correct answer :

1) The domain of the function $f(x) = \frac{2x+1}{x^2-2x-15}$ is:

a. $R - \{3, -5\}$

b. $R - \{-3, 5\}$

c. $\{5, -3\}$

d. $\{-3, 5\}$

2) The number must be excluded of $f(x) = \frac{x+5}{2x-8}$ is :

a. $\{-5\}$

b. $\{8\}$

c. $\{4\}$

d. $R - \{4\}$

3) The simplest form of : $\frac{2x-2}{x^2+x-2} \cdot \frac{x^2-4}{x}$ is :

a. $\frac{x-2}{x}$

b. $\frac{2}{x}$

c. $x - 2$

d. $\frac{2(x-2)}{x}$

4) Assume that x is positive $\sqrt{8x^2} \sqrt{3x} =$

a. $2x\sqrt{6x}$

b. $2|x|\sqrt{6x}$

c. $4x\sqrt{6x}$

d. $2x^2\sqrt{6x}$

5) The distance between $-6, -13$ is :

a. 19

b. -7

c. 7

d. -19

6) The value of the expression $\frac{|2x+3y|}{x-y} - 3xy$ where $x = -3, y = -2$

a. -30

b. -18

c. -6

d. $\frac{-78}{5}$

7) $x^3 - 125 =$

a. $(x - 5)(x^2 + 10x + 25)$

b. $(x + 5)(x^2 + 5x + 25)$

c. $(x - 5)(x^2 + 5x - 25)$

d. $(x - 5)(x^2 + 5x + 25)$

8) $x^2 + 9 =$

a. $(x - 3)(x + 3)$

b. $(x + 3)^2$

c. *prime*

d. $(x - 3)^2$

9) $(3x - 4)^2 =$

a. $9x^2 - 24x + 16$

b. $3x^2 - 24x + 16$

c. $9x^2 + 24x + 16$

d. $9x^2 + 24x - 16$

10) $x^3 + 2x^2 - 5x - 10 =$

a. $(x - 5)(x + 5)(x + 2)$

b. $(x^2 - 5)(x + 2)$

c. $(x^2 + 5)(x + 2)$

d. $(x^2 - 5)(x - 2)$

Q2*Simplify :* i) $\frac{5x+10}{x^2+2x-24} - \frac{3}{x-4}$

ii) $\frac{12}{\sqrt{7}-2}$

Q3*Factor completely :* i) $3x^2 - 12$

$$ii) 3x^5 + 24x^2$$

$$iii) x^3 - 3x^2 - 4x + 12$$

$$iv) 5x^4 - 5$$

Q4

Simplify : i) $\left(\frac{-18x^3y^{-1}}{30x^5y^{-4}}\right)^{-2}$

$$ii) (2x - 7)^3$$

$$iii) (3x - 4)(2x + 5)$$

Q5

Simplify : i) $\frac{x^2+2x-3}{x^2-2x-15} \div \frac{2x-2}{x^2-25}$

ii) $\sqrt[3]{6x^4y^8} \sqrt[3]{4x^7y}$

iii) $6x - 2[3(2x + 5) - 19]$

Good luck

8) $x^2 - 25 =$

a. $(x - 5)(x + 5)$

b. $(x + 5)^2$

c. *prime*

d. $(x - 5)^2$

9) $(3x - 4)^3 =$

a. $27x^3 - 324x^2 - 144x + 64$

b. $3x^3 - 108x^2 + 144x - 64$

c. $27x^3 + 108x^2 + 144x + 64$

d. $27x^3 - 108x^2 + 144x - 64$

10) $2x^5 - 2x =$

a. $(x - 1)(x + 1)(x^2 + 1)$

b. $2x(x - 1)(x + 1)(x^2 + 1)$

c. $2x(x^2 + 1)(x^2 - 1)$

d. $2x(x - 1)(x + 1)$

Q2

Simplify : i) $\frac{x^2-x-6}{x^3+8} \cdot \frac{x^2-2x+4}{x^2-9}$

ii) $\frac{10}{3+\sqrt{7}}$

Q3

Factor completly : i) $6x^2 - 13x - 8$

$$ii) 5x^4 - 135x$$

$$iii) x^3 + 7x^2 - 9x - 63$$

$$iv) x^4 - 9x^2$$

Q4 Simplify : i) $(-3x^{-1}y^2)^{-2}(2x^3y^{-2})^3$

$$ii) (3x + 5)^2$$

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

Q5 Simplify : *i)* $\frac{2x-3}{x^2-7x-18} + \frac{5}{2x-18}$

ii) $\sqrt{3x^3y^2} \sqrt{6x^3y^7}$

iii) $6 - 3[2(5x - 2) + 4]$

Good luck