

Question 1

Factor the following polynomial:

$$10x^2 + 130xy^2$$

Question 2

Factor the following polynomial:

$$d^2 - 2d - 24$$

Question 3

Factor the following polynomial:

$$10n^2 + 26nm + 12m^2$$

Question 4

Factor the following polynomial:

$$\frac{25c^2}{64} - 144s^4$$

Question 5

Factor the following polynomial:

$$3x^2 + xy - 12x - 4y$$

Question 6

Factor the following polynomial completely:

$$36x^2 + 48x + 16$$

Question 7

Factor the following polynomial completely

$$80a^5b - 5ab^5$$

Question 8

Reduce the following algebraic fraction to its lowest terms. Show all steps in the solution.

$$\frac{9a^2 - 16b^2}{15a^2 - 20ab}$$

Question 9

Express the quotient of the following algebraic fractions in lowest terms. Show all steps to your solution.

$$\frac{9 - y^2}{y^2 + 3y - 18} \div (b^2y + 3b^2)$$

Question 10

Express the difference of the following algebraic fractions in lowest terms. Show all steps to your solution.

$$\frac{7x^4}{2x^2} - \frac{16 - x^2}{(x - 4)}$$

Question 11

Express the product of the following algebraic fractions in lowest terms. Show all steps to your solution.

$$\frac{x^2 + 7x + 12}{3x} \times \frac{9x^2 + 18x}{x^2 - x - 12}$$

Question 12

Express the sum of the following algebraic fractions in lowest terms. Show all steps to your solution.

$$\frac{3}{4-x} + \frac{x+2}{2x^2-8x}$$

Question 13

The following two algebraic expressions are equivalent. Demonstrate their equivalence by transforming the expression on the left side. Show all steps to your solution.

$$\frac{(x+5)}{(x+6)} - \frac{9}{x^2 - 3x + 18} = \frac{(x-4)}{(x-3)}$$

Question 14

The following algebraic expressions are equivalent. This time, demonstrate their equivalence by transforming both expressions. Show all steps to your solution.

$$\frac{s+4}{s-4} - \frac{2s}{s^2-16} = \frac{s^3}{s^3-16s} + \frac{6s+16}{s^2-16}$$