

1. Expand the following :

(a) $(2a + b)(4a^2 - 2ab + b^2)$

(b) $(3x + y)(9x^2 - 3xy + y^2)$

2. Factorize the following :

(a) $5x^2 + 7xy - 6y^2$

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

(c) $x^4 - 7x^2 + 1$

3. Rationalize the following :

(a) $\frac{1}{\sqrt{2} + \sqrt{5} - \sqrt{7}}$

4. Solve the following double roots :

(a) $\sqrt{11 - \sqrt{120}}$

5. We suppose that $x = \frac{\sqrt{7} + \sqrt{5}}{2}$, $y = \frac{\sqrt{7} - \sqrt{5}}{2}$ respectively. Then calculate the following :

(a) $x^2 + y^2$

(b) $x^3 + y^3$

Suggested Answers

1. (a) $8a^3 + b^3$

(b) $27x^3 + y^3$

2. (a) $(x + 2y)(5x - 3y)$

(b) $(x - 2y + 3)(2x + y - 1)$

(c) $(x^2 + 3x + 1)(x^2 - 3x + 1)$

3. (a) $\frac{2\sqrt{5} + 5\sqrt{2} + \sqrt{70}}{20}$

4. (a) $\sqrt{6} - \sqrt{5}$

5. (a) 6

(b) $\frac{11\sqrt{7}}{2}$