



Grade 10

Mathematics

Binomial Expressions

1) Simplify the following binomial expressions.

i) $(x + 7)(x + 4)$

vi) $(3m + \frac{1}{2})(m + 4)$

ii) $(x - 8)(x - 5)$

vii) $(2y - 5)(y + 10)$

iii) $(x + 9)(x - 1)$

viii) $(-2q - 7p)(4q + 5p)$

iv) $(2x + 3y)(3x + 4y)$

ix) $(6a + 11b)(4x + 5y)$

v) $(5 - 2p)(3p + 4)$

x) $(\frac{1}{3}x + \frac{1}{4}y)(\frac{2}{5}x + \frac{1}{2}y)$

2) The length of a side of a square shaped land is 'x' metres. There is another rectangular shaped land where the length is 10m more and the breadth is 3m less than the first land.

- Express the length and the breadth of that rectangular shaped land, in terms of 'x'
- Construct an algebraic expression for the area of the rectangular shaped land and write it in the form of Ax^2+Bx+C

3) Simplify

i) $(P + 8)^2$

ii) $(3 + y)^2$

iii) $(x - 5)^2$

iv) $(y - 10)^2$

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

vi) $(2a + 5b)^2$

vii) $(q + 8)^2$

viii) $(-4m - 3)^2$

ix) $(2x + \frac{1}{2})^2$

4) Find the value of each of the following by writing it as a square of a binomial expression.

i) 103^2

ii) 49^2

iii) 10.1^2

iv) 98^2

5) i) If $x + y = 8$ and $xy = 12$, find the value of $x^2 + y^2$

ii) If $m - n = 2$ and $mn = 80$, find the value of $m^2 + n^2$

iii) If $a^2 + b^2 = 58$ and $ab = 21$, find the value of $a + b$

iv) If $x + \frac{1}{x} = 3$, find the value of $x^2 + \frac{1}{x^2}$

6) If $a = 5$ and $b = 4$, show that

i) $(-a - b)^2 = a^2 + 2ab + b^2$

ii) $(-a + b)^2 = a^2 - 2ab + b^2$



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