

Concept B2102) Expanding Perfect Squares

Expanding perfect squares involve using the distributive law.

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

$$= \boxed{}^{\boxed{}} + \boxed{} + \boxed{} + \boxed{}^{\boxed{}}$$

$$= \boxed{}^{\boxed{}} + \boxed{} + \boxed{}^{\boxed{}} \quad (\text{since } ab = ba)$$

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

$$= \boxed{}^{\boxed{}} - \boxed{} - \boxed{} + \boxed{}^{\boxed{}}$$

$$= \boxed{}^{\boxed{}} - \boxed{} + \boxed{}^{\boxed{}} \quad (\text{since } ab = ba)$$

Example

a. Expand $(3x+2)^2$.



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

Try It Yourself!

Expand the following.

i) $(x + 5)^2$

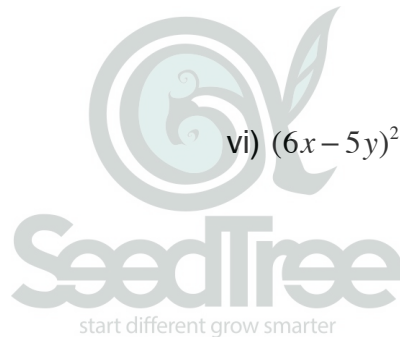
ii) $3(x - 3)^2$

iii) $(2x + 1)^2$

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

v) $(2x + 4y)^2$

vi) $(6x - 5y)^2$



vii) $(5 - 2x)^2 - 3$

viii) $2(10 - 4x)^2$

ANSWERS (Try It Yourself!)

- i) $x^2 + 10x + 25$ ii) $3x^2 - 18x + 27$ iii) $4x^2 + 4x + 1$ iv) $18x^2 - 48x + 32$
v) $4x^2 + 16xy + 16y^2$ vi) $36x^2 - 60xy + 25y^2$ vii) $4x^2 - 20x + 22$ viii) $32x^2 - 160x + 200$