Concept B2102) Expanding Perfect Squares

Expanding perfect squares involve using the distributive law.

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

$= \square^{\square} + \square + \square + \square^{\square}$

$= \square^{\square} + \square + \square^{\square}$ (since $ab = ba$)

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

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

$= \square^{\square} - \square + \square^{\square}$ (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) $32x^2-160x+200$