The National Orthodox School Shmaisani

Key Answer

Name: **Worksheet(1)** **Grade:8(A, B)**

Subject : Multiplying algebraic expressions (special cases) **Date :**

Expand and Simplify each of the following :

1

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

Example :

1 $(3k+5)^2$

$$(a+b)^2 = a^2 + 2ab + b^2$$ قانونُ مربعِ مجموعِ حدَّين

$$(3k+5)^2 = (3k)^2 + (2 \times 3k \times 5) + (5)^2$$ $a = 3k, b = 5$

$$= 9k^2 + 30k + 25$$ أبسطُ

2 $(y^2+3)^2$ $(a+b)^2 = a^2 + 2ab + b^2$

$a \leftarrow y^2$, $b \leftarrow 3$

$= (y^2)^2 + 2(y^2)(3) + (3)^2$

$= y^4 + 6y^2 + 9$

استه

$(3)^2 = 9 \neq 6$

3 $(2c+10)^2$ $(a+b)^2 = a^2 + 2ab + b^2$

$a \leftarrow 2c$, $b \leftarrow 10$

$= (2c)^2 + 2(2c)(10) + (10)^2$

$= 4c^2 + 40c + 100$

استه

$(2c)^2 = 4c^2 \neq 2c^2$

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

4 $(d^2+4)^2 = (d^2)^2 + 2(d^2)(4) + (4)^2$

a = d^2, b = 4

$= d^4 + 8d^2 + 16$

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

Example :

1 $(2h-z)^2$

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

$a = 2h, b = z$

$(2h-z)^2 = (2h)^2 - (2 \times 2h \times z) + (z)^2$

أبسطُ

$= 4h^2 - 4hz + z^2$

$a^2 - 2ab + b^2$

2 $(6-5y^3)^2 = (6)^2 - 2(6)(5y^3) + (5y^3)^2$

a = 6, b = $5y^3$

$= 36 - 60y^3 + 25y^6$

انتبه

$(5y^3)^2$

$= 5^2(y^3)^2$

$25y^6$

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3 $(7t^2-1)^2 = (7t^2)^2 - 2(7t^2)(1) + (1)^2$

a = $7t^2$, b = 1

$= 49t^4 - 14t^2 + 1$

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4 $(x^3-4y^2)^2 = (x^3)^2 - 2(x^3)(4y^2) + (4y^2)^2$

a = x^3, b = $4y^2$

$= x^6 - 8x^3y^2 + 16y^4$

3 $(a+b)(a-b) = a^2 - b^2$

Example :

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

أعوضُ $a = 2c, b = 3$

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

$$(2c+3)(2c-3) = (2c)^2 - 3^2$$

أبسطُ

$$= 4c^2 - 9$$

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2 $(4x^2 + d^5)(4x^2 - d^5) = (4x^2)^2 - (d^5)^2$

$$= 16x^4 - d^{10}$$

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3 $(6w + d^4)(6w - d^4) = (6w)^2 - (d^4)^2$

$$= 36w^2 - d^8$$

$(6w)^2 = 36w^2$

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4 $(x^3 + 3h^7)(x^3 - 3h^7) = (x^3)^2 - (3h^7)^2$

$$= x^6 - 9h^{14}$$

$(3h^7)^2 = 3^2(h^7)^2 = 9h^{14}$

Wisam Al – mashni