Lesson 8-4   Special Products

Square of a Sum

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

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

The square of a +b is the <u>square of a</u> PLUS <u>twice the product of a and b</u> PLUS the <u>square of b</u>

$a^2 + 2 \cdot a \cdot b + b^2$

A. $(7z + 2)^2 = \underline{(7z)^2} + \underline{2 \cdot 7z \cdot 2} + \underline{2^2}$

$= \underline{49z^2 + 28z + 4}$

$(5q + 9r)(5q + 9r)$

B. $(5q + 9r)^2 = \underline{(5q)^2} + \underline{2 \cdot 5q \cdot 9r} + \underline{(9r)^2}$

$= \underline{25q^2 + 90qr + 81r^2}$

Square of a Difference

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

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

The square of a – b is the <u>square of a</u> MINUS <u>twice the product of a and b</u> PLUS the <u>square of b</u>

$a^2 - 2 \cdot a \cdot b + b^2$

C. $(3c - 4)^2 = \underline{(3c)^2} - \underline{2 \cdot 3c \cdot 4} + \underline{4^2}$

$= \underline{9c^2 - 24c + 16}$

D. $(6e - 6f)^2 = \underline{(6e)^2} - \underline{2 \cdot 6e \cdot 6f} + \underline{(6f)^2}$

$= \underline{36e^2 - 72ef + 36f^2}$

Product of a Sum and a Difference

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

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

$a^2 - b^2$

The product of a +b and a – b is the <u>square of a</u> MINUS the <u>square of b</u>

$a^2 - b^2$

E. $(9d - 4)(9d + 4) = \underline{(9d)^2} - \underline{4^2}$

$= \underline{81d^2 - 16}$

F. $(10g + 13h^3)(10g - 13h^3) = \underline{(10g)^2} - \underline{(13h^3)^2}$

$= \underline{100g^2 - 169h^6}$

Lesson 8-4   *Special Products*

Practice:

1. $(x - 6)^2$

2. $(3p + 4)^2$

3. $(4x - 5)^2$

4. $(2x - 1)^2$

5. $(2h + 3)^2$

6. $(m + 5)^2$

7. $(2h^2 - k^2)^2$

8. $\left(\frac{1}{4}x + 3\right)^2$

9. $(x - y)(x + y)$

10. $(y - 4x)(y + 4x)$

11. $(8 + 4x)(8 - 4x)$

12. $(3a - 2b)(3a + 2b)$

13. $(3x - 2y^2)(3x + 2y^2)$

14. $(2p - 5s)(2p + 5s)$

15. $\left(\frac{4}{3}x - 2y\right)\left(\frac{4}{3}x + 2y\right)$