

5.4

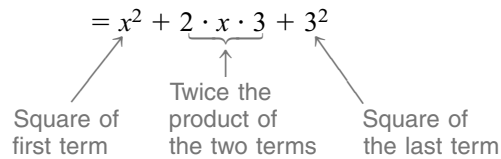
Squaring a Binomial

• Example 1

$$(a) (x + 3)^2 = (x + 3)(x + 3)$$

$$= x^2 + x \cdot 3 + 3 \cdot x + 3^2$$

$$= x^2 + 2 \cdot x \cdot 3 + 3^2$$



$$= x^2 + 6x + 9$$

$$(b) (3a + 4b)^2 = (3a)^2 + 2 \cdot 3a \cdot 4b + (4b)^2$$
$$= 9a^2 + 24ab + 16b^2$$

$$(c) (y - 5)^2 = y^2 + 2 \cdot y \cdot (-5) + (-5)^2$$
$$= y^2 - 10y + 25$$

$$(d) (5c - 3d)^2 = (5c)^2 + 2(5c)(-3d) + (-3d)^2$$
$$= 25c^2 - 30cd + 9d^2$$

• • • CHECK YOURSELF 1

Multiply.

a. $(2x + 1)^2$

b. $(4x - 3y)^2$

• • • CHECK YOURSELF ANSWER

1. (a) $4x^2 + 4x + 1$; (b) $16x^2 - 24xy + 9y^2$.

5.4 Exercises

Name _____

Section _____

Date _____

A N S W E R S

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Find each of the following squares.

- | | |
|--------------------------------------|--------------------------------------|
| 1. $(x + 5)^2$ | 2. $(y + 9)^2$ |
| 3. $(w - 6)^2$ | 4. $(a - 8)^2$ |
| 5. $(z + 12)^2$ | 6. $(p - 20)^2$ |
| 7. $(2a - 1)^2$ | 8. $(3x - 2)^2$ |
| 9. $(6m + 1)^2$ | 10. $(7b - 2)^2$ |
| 11. $(3x - y)^2$ | 12. $(5m + n)^2$ |
| 13. $(2r + 5s)^2$ | 14. $(3a - 4b)^2$ |
| 15. $(8a - 9b)^2$ | 16. $(7p + 6q)^2$ |
| 17. $\left(x + \frac{1}{2}\right)^2$ | 18. $\left(w - \frac{1}{4}\right)^2$ |
| 19. $(x + 7)^2$ | 20. $(a - 8)^2$ |
| 21. $(2w - 5)^2$ | 22. $(3p + 4)^2$ |