

NAME _____

DATE _____

PERIOD _____

8-4**Study Guide and Intervention****Special Products**

Square of a sum	$(a + b)^2 = (a + b)(a + b)$
Square of a difference	$(a - b)^2 = (a - b)(a - b)$

Square of a Binomial = WRITE TWO COPIES AND THEN MULTIPLY**Exercises****Find each product.**

$$1. (x - 6)^2(x - 6)$$

$$x^2 - 6x - 6x + 36$$

$$x^2 - 12x + 36$$

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

$$9p^2 + 12p + 12p + 16$$

$$9p^2 + 24p + 16$$

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

$$16x^2 - 20x - 20x + 25$$

$$16x^2 - 40x + 25$$

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

$$4x^2 - 2x - 2x + 1$$

$$4x^2 - 4x + 1$$

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

$$4h^2 + 6h + 6h + 9$$

$$4h^2 + 12h + 9$$

$$6. (m + 5)^2(m + 5)$$

$$m^2 + 5m + 5m + 25$$

$$m^2 + 10m + 25$$

Exercises

Find each product.

$$7. (a + 3)^2(a + 3)$$

$$a^2 + 3a$$

$$\square + 3a + 9$$

$$a^2 + 6a + 9$$

$$8. (3 - p)^2(3 - p)$$

$$9 - 3p$$

$$\square - 3p + p^2$$

$$p^2 - 6p + 9$$

$$9. (x - 5y)^2(x - 5y)$$

$$x^2 - 5xy$$

$$\square - 5xy + 25y^2$$

$$x^2 - 10xy + 25y^2$$

$$10. (8y + 4)^2(8y + 4)$$

$$64y^2 + 32y$$

$$\square + 32y + 16$$

$$64y^2 + 64y + 16$$

$$11. (8 + x)^2(8 + x)$$

$$64 + 8x$$

$$\square + 8x + x^2$$

$$x^2 + 16x + 64$$

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

$$9a^2 - 6ab$$

$$\square - 6ab + 4b^2$$

$$9a^2 - 12ab + 4b^2$$

$$13. (2x - 8)^2(2x - 8)$$

$$4x^2 - 16x$$

$$\square - 16x + 64$$

$$4x^2 - 32x + 64$$

$$14. (x^2 + 1)^2(x^2 + 1)$$

$$x^4 + x^2$$

$$\square + x^2 + 1$$

$$x^4 + 2x^2 + 1$$

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Product of a Sum and a Difference

 $(a + b)(a - b)$

MULTIPLY CONJUGATES AND SEE WHAT HAPPENS

Exercises

Find each product.

$$1. (x - 4)(x + 4)$$

$$x^2 + \cancel{4x} - \cancel{4x} - 16$$

$$x^2 - 16$$

$$2. (p + 2)(p - 2)$$

$$p^2 - \cancel{2p} + \cancel{2p} - 4$$

$$p^2 - 4$$

$$3. (4x - 5)(4x + 5)$$

$$16x^2 + \cancel{20x} - \cancel{20x} - 25$$

$$16x^2 - 25$$

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

$$4x^2 + \cancel{2x} - \cancel{2x} - 1$$

$$4x^2 - 1$$

$$5. (h + 7)(h - 7)$$

$$h^2 - \cancel{7h} + \cancel{7h} - 49$$

$$h^2 - 49$$

$$6. (m - 5)(m + 5)$$

$$m^2 + \cancel{5m} - \cancel{5m} - 25$$

$$m^2 - 25$$

$$7. (2d - 3)(2d + 3)$$

$$4d^2 + \cancel{6d} - \cancel{6d} - 9$$

$$4d^2 - 9$$

$$8. (3 - 5q)(3 + 5q)$$

$$9 + \cancel{15q} - \cancel{15q} - 25q^2$$

$$9 - 25q^2$$

Exercises

Find each product.

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

$$\begin{array}{r} x^2 + xy \\ \square - xy - y^2 \\ \hline x^2 - y^2 \end{array}$$

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

$$\begin{array}{r} y^2 + 4xy \\ \square - 4xy - 16x^2 \\ \hline -16x^2 + y^2 \end{array}$$

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

$$\begin{array}{r} 64 - 32x \\ \square + 32x - 16x^2 \\ \hline -16x^2 + 64 \end{array}$$

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

$$\begin{array}{r} 9a^2 + 6ab \\ \square - 6ab - 4b^2 \\ \hline 9a^2 - 4b^2 \end{array}$$

$$13. (3y - 8)(3y + 8)$$

$$\begin{array}{r} 9y^2 + 24y \\ \square - 24y - 64 \\ \hline 9y^2 - 64 \end{array}$$

$$14. (x^2 - 1)(x^2 + 1)$$

$$\begin{array}{r} x^4 + x^2 \\ \square - x^2 - 1 \\ \hline x^4 - 1 \end{array}$$

$$15. (m^2 - 5)(m^2 + 5)$$

$$\begin{array}{r} m^4 + 5m^2 \\ \square - 5m^2 - 25 \\ \hline m^4 - 25 \end{array}$$

$$16. (x^3 - 2)(x^3 + 2)$$

$$\begin{array}{r} x^6 + 2x^3 \\ \square - 2x^3 - 4 \\ \hline x^6 - 4 \end{array}$$