Algebra 1

Our Goal: To learn to square a binomial

Warm Up: Writing absolute value equations

Today's homework
7.3 Exercises, p.375-376: 4-36 (evens)

Previous homework
7.2 Exercises, p.369-370: 4-44 (evens)

$$(5d-12)(-7+3d)$$
$$(5d-12)(3d-7)$$
$$15d^2 - 71d + 84$$
$$O + I$$
$$-35d - 36d$$

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Write an absolute value equation that has the given solutions.

1. $x = 9$ and $x = 17$ **2.** $x = 3$ and $x = 8$

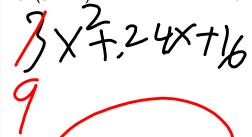**3.** $x = 5$ and $x = 16$ **4.** $x = -3$ and $x = 10$

5. $x = -5$ and $x = 3$ **6.** $x = -2$ and $x = 1$

$$\left| x - \boxed{10.5} \right| = \boxed{5.5}$$

$$X - 10.5 = 5.5 \quad \text{OR} \quad X - 10.5 = -5.5$$

Core Concept

Square of a Binomial Pattern

Algebra	Example
$(a + b)^2 = a^2 + 2ab + b^2$	$(x + 5)^2 = (x)^2 + 2(x)(5) + (5)^2$
	$= x^2 + 10x + 25$
$(a - b)^2 = a^2 - 2ab + b^2$	$(2x - 3)^2 = (2x)^2 - 2(2x)(3) + (3)^2$
	$= 4x^2 - 12x + 9$

$$(a+b)^2 \neq a^2 + b^2$$

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

$$(3+4)^2 = 3^2 + 4^2$$
$$49 = 9 + 16$$
$$25$$

$$(x-y)^2 = x^2 - 2xy + y^2$$

$$(xy)^2 = x^2 \cdot y^2$$

Find each product.

a. $(3x + 4)^2$ **b.** $(5x - 2y)^2$

$$3x^2 + 24x + 16 \qquad 25x^2 - 20xy$$
$$9 \qquad\qquad\qquad\qquad + 4y^2$$

$$(3x + 4)(3x + 4)$$

$$12x + 12x$$

Find the product.

1. $(x + 7)^2$ **2.** $(7x - 3)^2$

3. $(4x - y)^2$ **4.** $(3m + n)^2$

Core Concept

Sum and Difference Pattern

Algebra

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

Example

$(x + 3)(x - 3) = x^2 - 9$

"Conjugates"

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

$$a^2 - b^2$$

Find each product.

a. $(t + 5)(t - 5)$

$$t^2 - 5^2$$

$$t^2 - 25$$

b. $(3x + y)(3x - y)$

$$3x^2 - y^2$$

$$9x^2 - y^2$$

Use special product patterns to find the product 26 • 34.

$$26$$
$$34$$

$$(30-4)(30+4)$$
$$30^2 - 4^2$$
$$900 - 16$$
$$884 ✓$$

$$99 \cdot 10$$

$$29 \cdot 31 \quad (30-1)(30+1)$$
$$(30^2 - 1^2)$$
$$899$$

Find the product.

5. $(x + 10)(x - 10)$ **6.** $(2x + 1)(2x - 1)$ **7.** $(x + 3y)(x - 3y)$

$$x^2 - 10x + 10x - 100$$

$$\boxed{x^2 - 100}$$

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

$$x^2 - 9y^2$$

8. Describe how to use special product patterns to find 21^2:

$$(20 + 1)^2$$

$$20^2 + 2 \cdot 20 + 1$$

$$441$$

tests   quizzes

$$\frac{\begin{array}{c} 90 \\ 80 \end{array}}{85} \quad \cdot \quad \frac{\begin{array}{c} 100 \\ 90 \end{array}}{95}$$

$$0.6(85) + (.4)(95)$$

$$89$$