

Geometry CC - Unit 8  
Lesson 2: Pythagorean Theorem (Day 2)  
M2 LO

**Homework:** HW Handout 8.2

**Do Now:** A baseball diamond is a square with sides of 90 feet. What is the shortest distance, to the nearest tenth of a foot, between first base and third base?

$a^2 + b^2 = c^2$   
 $90^2 + 90^2 = c^2$   
 $8100 + 8100 = c^2$   
 $\sqrt{16200} = \sqrt{c^2}$   
 $c \approx 127.3 \text{ ft}$

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1. Express the value of  $x$  in simplest radical form:

$(3x)^2 + (4x)^2 = (\sqrt{200})^2$   
 $9x^2 + 16x^2 = 200$   
 $\frac{25x^2}{25} = \frac{200}{25}$   
 $\sqrt{x^2} = \sqrt{8}$   
 $x = \sqrt{4} \sqrt{2}$   
 $x = 2\sqrt{2}$

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2. Find all possible values of  $x$ :

$3^2 + 4^2 = 5^2$   
 $25 = 25 \checkmark$

$x^2 + (x+1)^2 = (x+2)^2$   
 $x^2 + (x+1)(x+1) = (x+2)(x+2)$   
 $x^2 + x^2 + x + x + 1 = x^2 + 2x + 2x + 4$   
 $2x^2 + 2x + 1 = x^2 + 4x + 4$   
 $-x^2 - 4x - 4 - x^2 - 4x - 4$   
 $x^2 - 2x - 3 = 0$   
 $(x+1)(x-3) = 0$   
 $x = -1 \quad x = 3$

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3. Find all possible values of  $x$ :

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4. The diagram below shows a pennant in the shape of an isosceles triangle. The equal sides each measure 13, the altitude is  $x + 7$ , and the base is  $2x$ . What is the length of the base?

$x^2 + (x+7)^2 = 13^2$   
 $x^2 + (x+7)(x+7) = 169$   
 $x^2 + x^2 + 7x + 7x + 49 = 169$   
 $2x^2 + 14x + 49 = 169$   
 $2x^2 + 14x - 120 = 0$   
 $x^2 + 7x - 60 = 0$   
 $(x+12)(x-5) = 0$   
 $x = -12 \quad x = 5$

length of the base is 10 units

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5. Which set of numbers does *not* represent the sides of a right triangle?

a)  $\{6, 8, 10\}$   $6^2 + 8^2 = 10^2$   
 b)  $\{8, 24, 25\}$   $8^2 + 24^2 \neq 25^2$   
 c)  $\{8, 15, 17\}$   $8^2 + 15^2 = 17^2$   
 d)  $\{15, 36, 39\}$   $15^2 + 36^2 = 39^2$

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