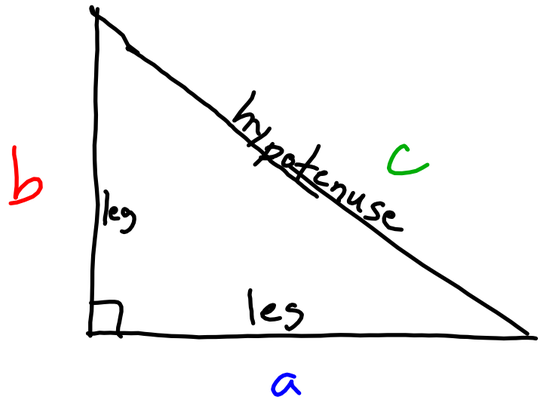
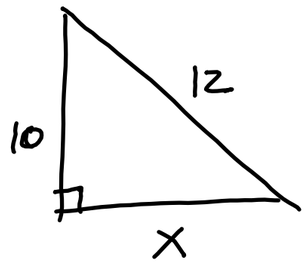
Pythagorean Theorem



$$a^2 + b^2 = c^2$$

EX →



$10^2 + x^2 = 12^2$

$100 + x^2 = 144$

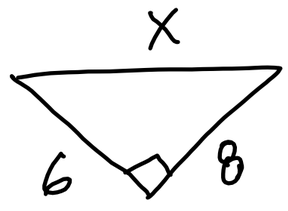
$x^2 = 44$

$x = \sqrt{44}$

$x = \sqrt{4} \cdot \sqrt{11}$

$x = 2\sqrt{11}$

EX →



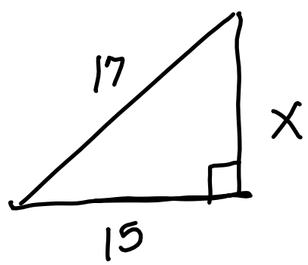
$6^2 + 8^2 = x^2$

$36 + 64 = x^2$

$100 = x^2$

$x = 10$

EX →



$x^2 + 15^2 = 17^2$

$x^2 + 225 = 289$

$x^2 = 64$

$x = 8$

- Pythagorean Triples
  ↳ set of 3 #'s that fit Pythagorean Theorem (also include any whole # multiples of set)

(*) 3, 4, 5 → 6, 8, 10 → 9, 12, 15 → 30, 40, 50

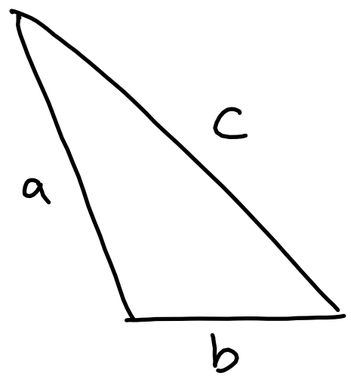
(*) 5, 12, 13

(*) 7, 24, 25

(*) 8, 15, 17

(*) 9, 40, 41

- Converse & Corollary of Pythagorean Thm.



$a^2 + b^2 \underline{\ ?\ } c^2$

→ $a^2 + b^2 = c^2 \Rightarrow$ RIGHT △

→ $a^2 + b^2 > c^2 \Rightarrow$ ACUTE △

→ $a^2 + b^2 < c^2 \Rightarrow$ OBTUSE △

EX → 7, 8, 10

$7^2 + 8^2 \quad 10^2 \Rightarrow 49 + 64 > 100 \Rightarrow 113 > 100 \rightarrow$ ACUTE

EX → 7, 8, 14

$7^2 + 8^2 \quad 14^2 \Rightarrow 113 < 196 \rightarrow$ OBTUSE

HW : p. 495 → 8-32 even, 55-57