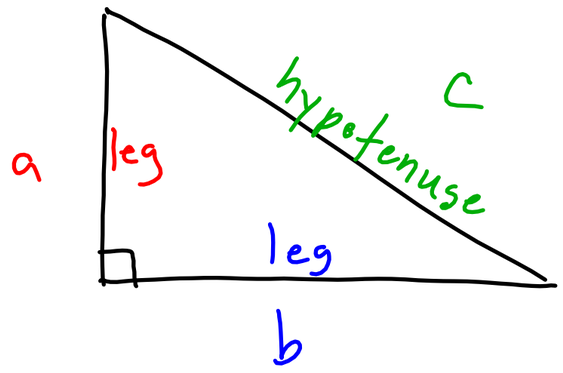
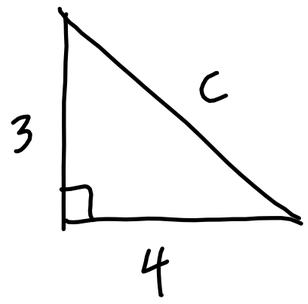
Pythagorean Theorem



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

EX →



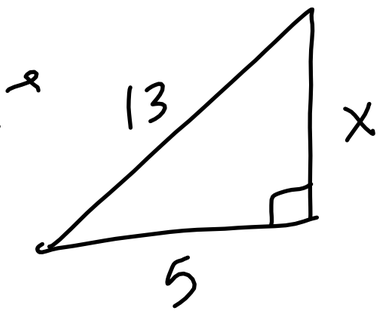
$3^2 + 4^2 = c^2$

$9 + 16 = c^2$

$\sqrt{25} = \sqrt{c^2}$

$5 = c$

EX →



$5^2 + x^2 = 13^2$

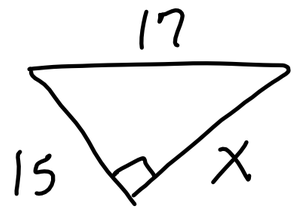
$x^2 = 13^2 - 5^2$

$x^2 = 169 - 25$

$\sqrt{x^2} = \sqrt{144}$

$x = 12$

EX →



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

$x^2 = 17^2 - 15^2$

$x^2 = 289 - 225$

$x^2 = 64$

$x = 8$

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

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

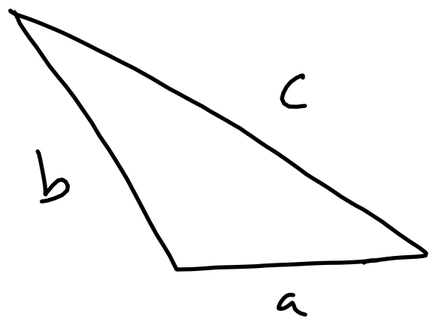
(*) 5, 12, 13

(*) 7, 24, 25

(*) 8, 15, 17

(*) 9, 40, 41

- Converse + Corollary to Pythagorean Theorem



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

→ $a^2 + b^2 = c^2 \Rightarrow$ RIGHT

→ $a^2 + b^2 > c^2 \Rightarrow$ ACUTE

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

EX → 3, 4, 6

$3^2 + 4^2 \quad 6^2$

$9 + 16 \quad 36$

$25 < 36 \rightarrow$ OBTUSE

EX → 4, 5, 8

$4^2 + 5^2 \quad 8^2$

$16 + 25 \quad 64$

$41 < 64 \rightarrow$ OBTUSE

EX → 6, 8, 10

$6^2 + 8^2 \quad 10^2$

$36 + 64 \quad 100$

$100 = 100 \rightarrow$ RIGHT

HW: p. 495 → 8-32 even