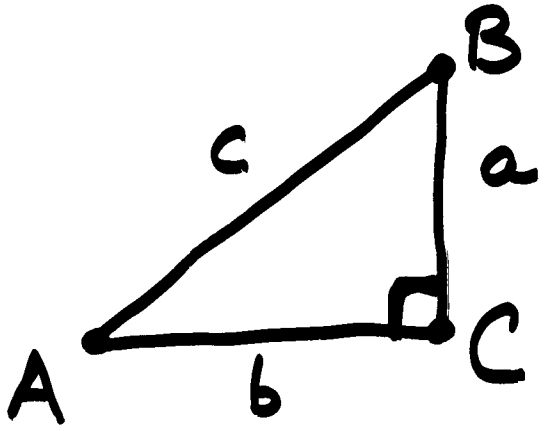
BE-1B THURSDAY 1-4-07

COPY FOR NOTES:

ANY right triangle:



Sides are a, b, c (lower case)

Angles are A, B, C (upper case)

$\angle A$ is opposite side a

$\angle B$ is opposite side b

$\angle C$ is opposite side c

c is called the hypotenuse

a, b are called the legs

$$\boxed{c^2 = a^2 + b^2}$$ P. T.

Ex 1 Pg 605
Given a △

Find c, if a = 8, b = 15

- Write P. T.
- Substitute "knowns"
- Solve for unknown

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

$$c^2 = (\ )^2 + (\ )^2$$

$$c^2 = (8)^2 + (15)^2$$

$$c^2 = 64 + 225$$

$$c^2 = 289$$

$$\sqrt{c^2} = \sqrt{289}$$ will not -17 too?

$$\boxed{c = 17}$$

Ex 2 Pg 606 Right △

Find missing side, $c = 25$ $b = 10$

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

$$(25)^2 = a^2 + (10)^2$$

$$625 = a^2 + 100$$

$$-100 \qquad -100$$

$$525 = a^2$$

$$a = \sqrt{525}$$

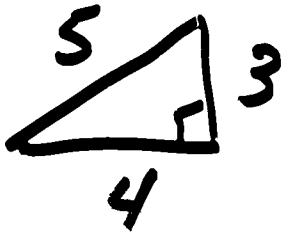
Estimate? Calculators OK here

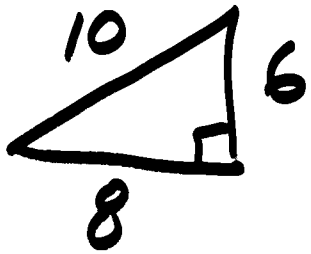
$$\boxed{a \approx 22.91}$$

to nearest hundredth

Pythagorean Triples

Right Triangles with 3 sides that are integers

Ex) 

Ex) 

Finally, given any 3 numbers, how can you tell if they form a right triangle? (Does $c^2 = a^2 + b^2$?)

Ex 4 Pg 607

(a) 20, 21, 29

(b) 8, 10, 12

EX Find missing side, round to nearest hundredth if necessary

A. $a = 16 \quad b = 63$

$c^2 = 16^2 + 63^2$

$c^2 = 256 + 3969$

$c^2 = 4225$

$\boxed{c = 65}$

B. $a = 4 \quad b = \sqrt{11}$

$c^2 = 4^2 + (\sqrt{11})^2$

$c^2 = 16 + 11$

$c^2 = 27$

$c = 5.196152423 \approx \boxed{5.20}$