

Good afternoon: warm up in notes

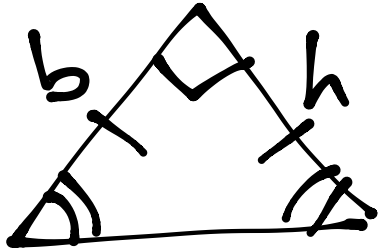


Shown here is a gabled roof. The garage width spans 20 feet. Find the area of the triangular gable.

$$A = \frac{1}{2} b \cdot h$$

Reminders:

- retakes in DS today, DS Friday, Tues tutoring 4-5p
- next assess: Mon 2/12

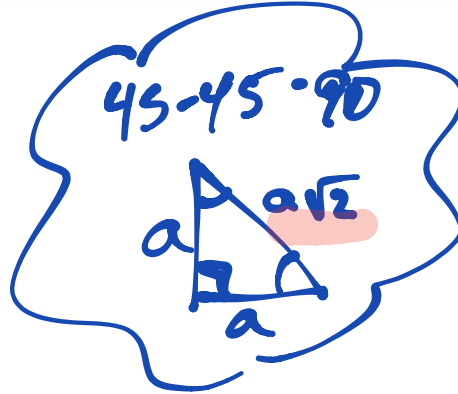


20

$$20 = a \cdot \sqrt{2}$$

$$\frac{20}{\sqrt{2}} = \frac{a \cdot \sqrt{2}}{\sqrt{2}}$$

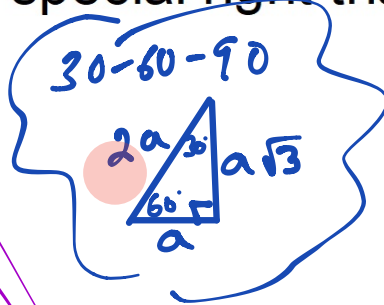
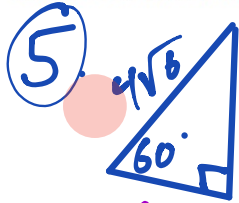
$$\frac{20}{\sqrt{2}} = a$$



$$A = \frac{1}{2} \left(\frac{20}{\sqrt{2}} \cdot \frac{20}{\sqrt{2}} \right) = \frac{400}{2 \cdot 2} = 100 \text{ sq. ft.}$$

$B \cdot H$ $(\sqrt{2})^2 = 2$

Questions on special right triangles hw?



$$4\sqrt{6} = 2a$$

$$\frac{4\sqrt{6}}{2} = \frac{2a}{2}$$

$$\underline{\underline{2\sqrt{6} = a}}$$

leg opposite 60°: $a\sqrt{3}$

$$\rightarrow 2\sqrt{6} \cdot \sqrt{3}$$

$$\underline{\underline{2\sqrt{18}}}$$

or,

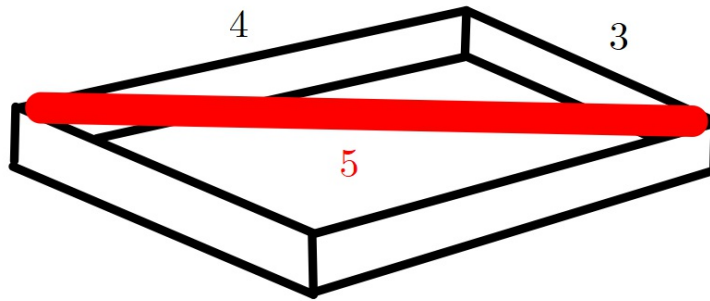
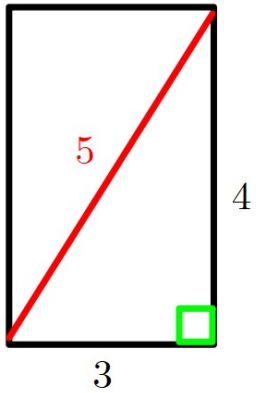
$$2\sqrt{9 \cdot 2}$$
$$2 \cdot \sqrt{9} \cdot \sqrt{2}$$
$$2 \cdot 3\sqrt{2}$$
$$\underline{\underline{6\sqrt{2}}}$$

(no need to write this down)

A person buys a 5 foot long fishing pole from a store. He begins to board the bus to return home when the driver informs him that objects longer than 4 feet are not allowed on the bus. Disappointed, he goes back into the store, only to emerge a few minutes later. He boards the bus along with his fishing pole without any issue. What has he done? (Pole has not been telescoped/collapsed/etc. Pole is not flexible, answer involves no cheating or ridiculous leaps of logic)

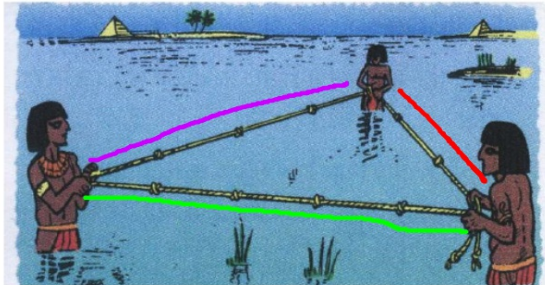


He gets a 3 foot by 4 foot box from the store, places the pole in diagonally, and boards the bus





The Pythagorean Theorem is one of humanity's most powerful math discoveries

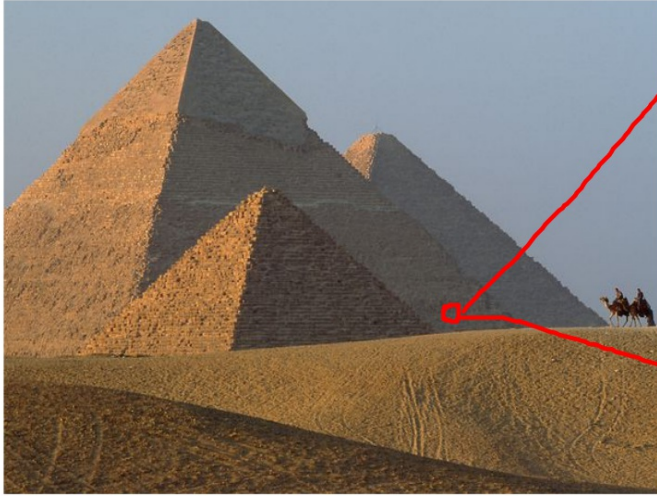


Ancient Egyptians using rope with equally spaced knots, marking out 12 units



$$\text{since } 3^2 + 4^2 = 5^2$$

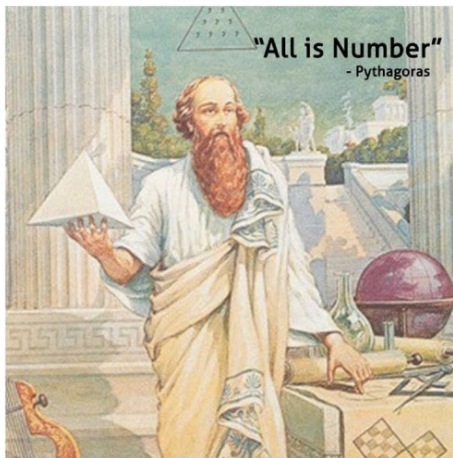
this must be a 90° angle

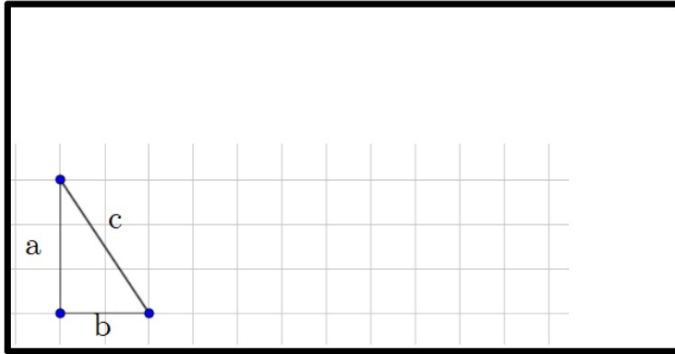


Precise right angles helped lead to this!

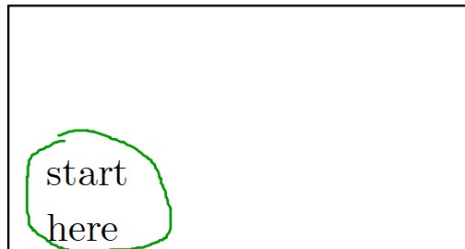
That the sides of a right triangle fit this pattern was known to Egyptian, Indian, and Chinese civilizations before Greece

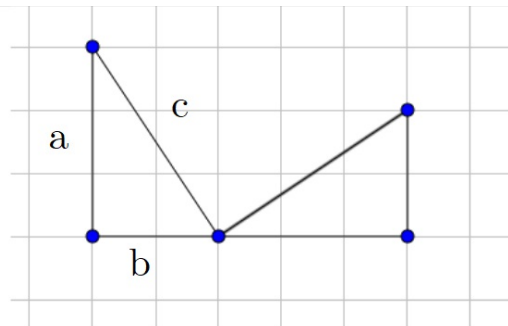
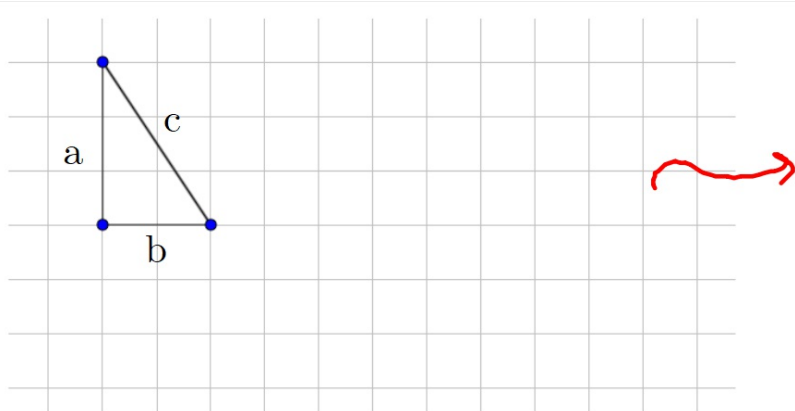
Idea is named for Pythagoras (6th century BCE) who formalized/recorded its proof and importance and incorporated it into his wider philosophy





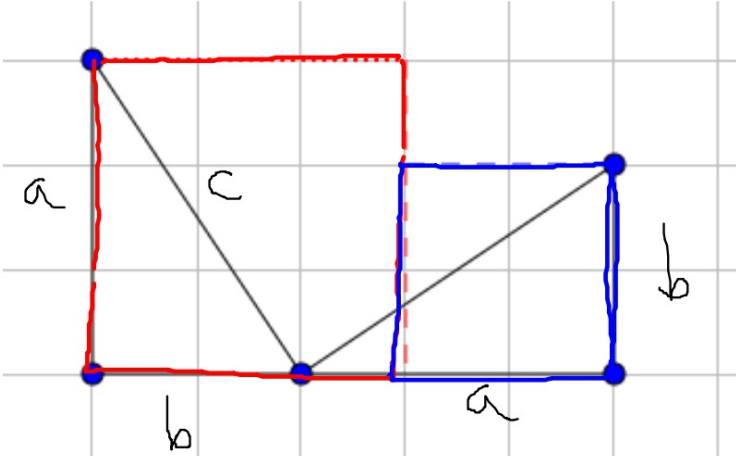
Use the grid to make a right triangle. Mine has legs of 2 and 3. Yours can be different!



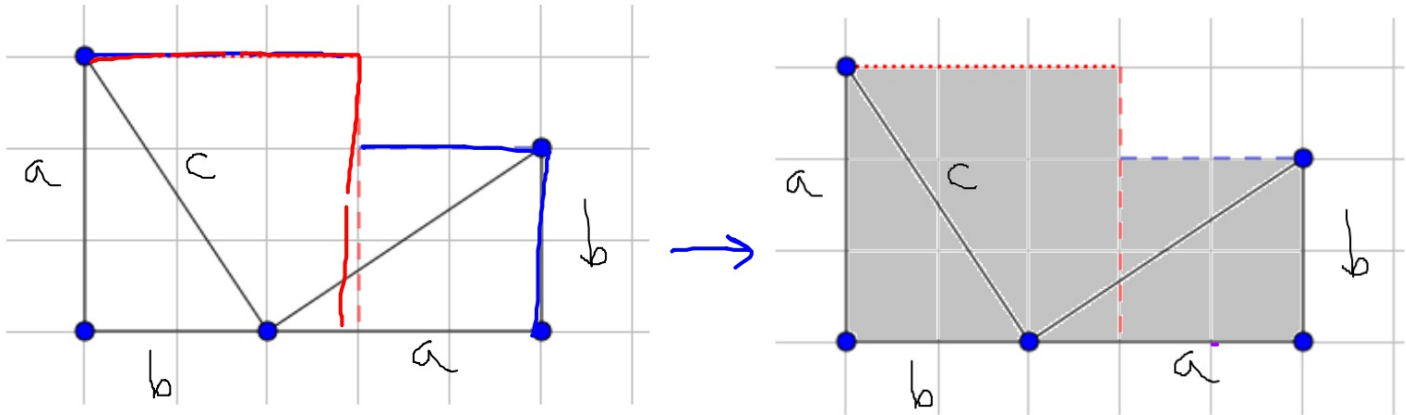


Translate and rotate as shown, creating a new copy of the triangle

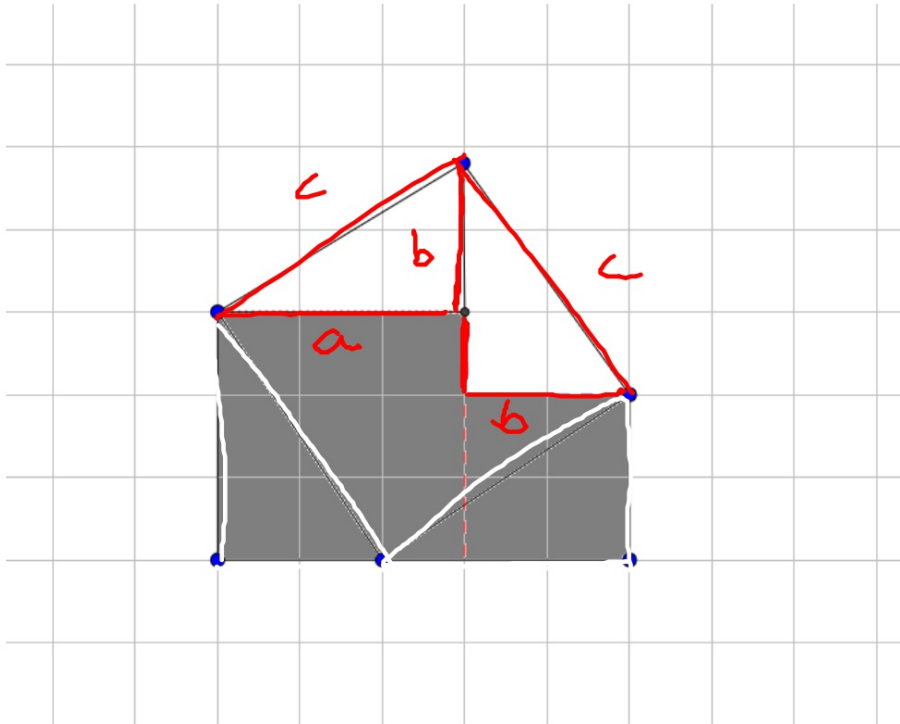
Make squares, one with side length a , the other with b



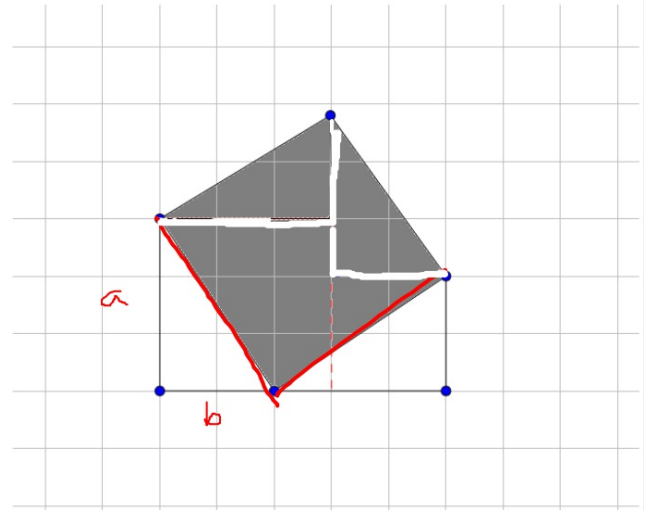
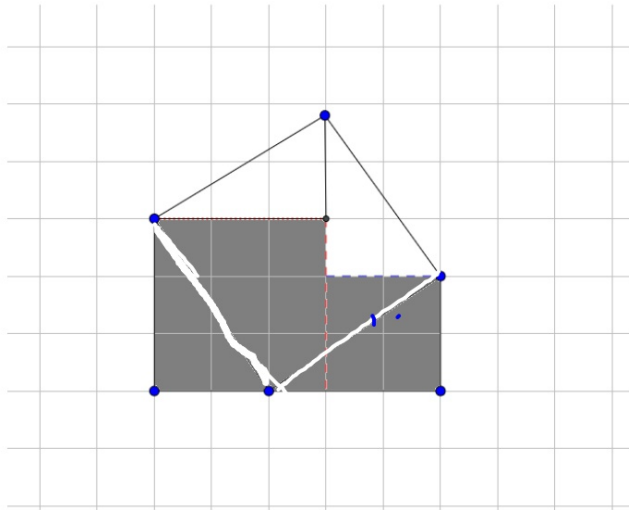
Shade the squares in with pencil. What is their combined area?



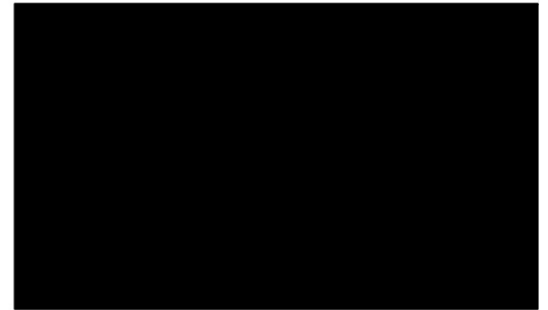
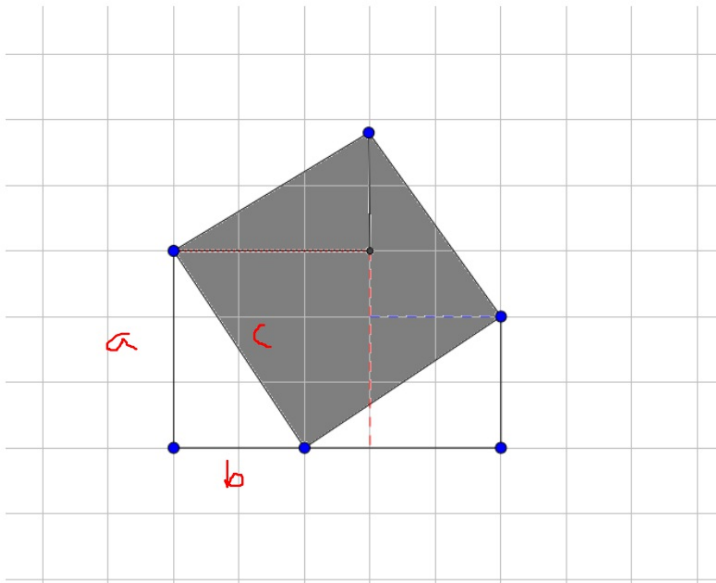
Make two more copies of your triangle like so:



Erase the shading on your original triangles and shade in the new ones



What kind of shape is this? What is its area? Give two different representations of its area



Trigonometry...what do you know about it?

Tonight's hw video: the essential preparation for trig
watch it and take notes!

