

8.20.19 6th Geo

$$\begin{array}{r} 62 \\ - 8 \\ \hline 54 \end{array}$$

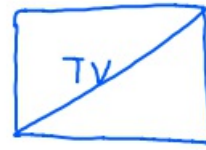
ab

$$10 \cdot a + b - (a+b)$$

$$10a + b - a - b$$

$$9a$$

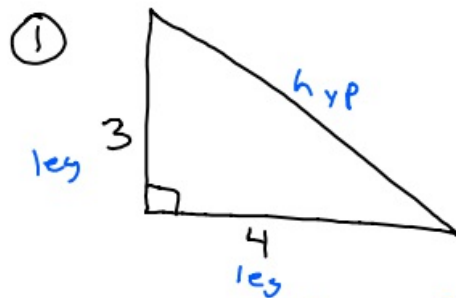
Right Triangle



$$\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$$

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

Pythagorean Theorem



$$\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$$

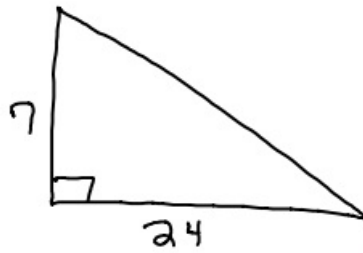
$$3^2 + 4^2 = \text{hyp}^2$$

$$9 + 16 = \text{hyp}^2$$

$$\sqrt{25} = \sqrt{\text{hyp}^2}$$

$$\text{hyp} = 5$$

②



$$\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$$

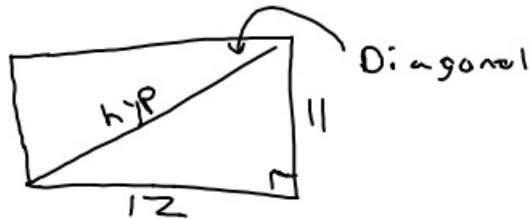
$$24^2 + 7^2 = \text{hyp}^2$$

$$576 + 49 = \text{hyp}^2$$

$$\sqrt{625} = \sqrt{\text{hyp}^2}$$

$$\text{hyp} = 25$$

③



$$\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$$

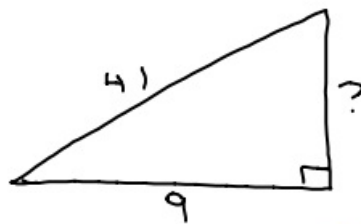
$$11^2 + 12^2 = \text{hyp}^2$$

$$121 + 144 = \text{hyp}^2$$

$$\sqrt{265} = \sqrt{\text{hyp}^2}$$

$$\text{hyp} \approx 16.3$$

④



$$\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$$

$$9^2 + \text{leg}^2 = 41^2$$

$$81 + \text{leg}^2 = 1681$$

$$\begin{array}{r} 81 + \text{leg}^2 = 1681 \\ -81 \qquad \qquad -81 \\ \hline \end{array}$$

$$\sqrt{\text{leg}^2} = \sqrt{1600}$$

$$\text{leg} = 40$$

⑤ If a triangle had sides of 6, 8, and 10 is it a right triangle?

$$6^2 + 8^2 = 10^2 ?$$
$$36 + 64 = 100 \checkmark$$

⑥ What about
5, 12, 6

↑
hyp.

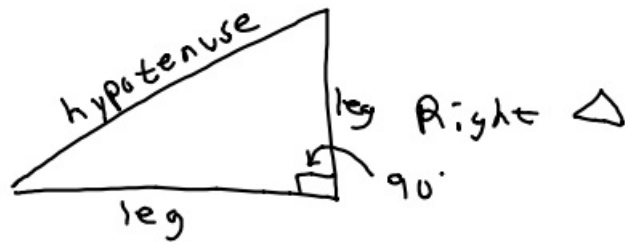
$$5^2 + 6^2 = 12^2 ?$$

NO!

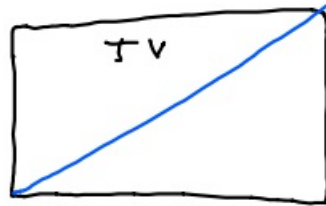
8-20-19 7th Geo

$$\begin{array}{r} 52 \\ \textcircled{-7} \\ \hline 45 \end{array} \leftarrow \text{magical \#}$$

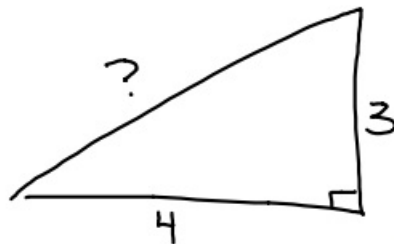
$$\begin{array}{l} ab \\ 10a + b - (a+b) \\ 10a + b - a - b \\ 9a \end{array}$$



Pythagorean Theorem
 $\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$

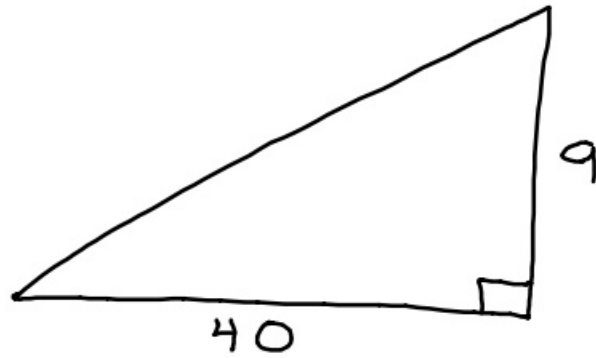


①



$$\begin{array}{l} \text{leg}^2 + \text{leg}^2 = \text{hyp}^2 \\ 3^2 + 4^2 = \text{hyp}^2 \\ 9 + 16 = \text{hyp}^2 \\ \sqrt{25} = \sqrt{\text{hyp}^2} \\ \text{hyp} = 5 \end{array}$$

②



$$1 \text{ leg}^2 + 1 \text{ leg}^2 = \text{hyp}^2$$
$$a^2 + b^2 = c^2$$

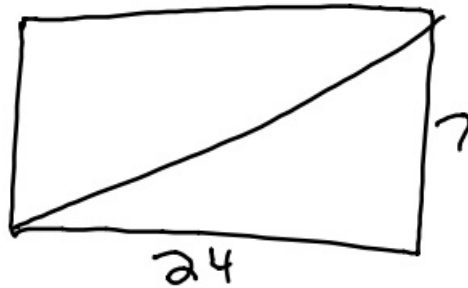
$$40^2 + 9^2 = \text{hyp}^2$$

$$1600 + 81 = \text{hyp}^2$$

$$\sqrt{1681} = \sqrt{\text{hyp}^2}$$

$$41 = \text{hyp}$$

③



$$1 \text{ leg}^2 + 1 \text{ leg}^2 = \text{hyp}^2$$

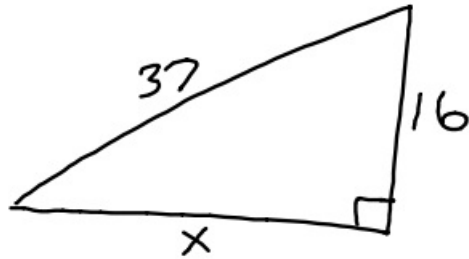
$$24^2 + 7^2 = \text{hyp}^2$$

$$576 + 49 = \text{hyp}^2$$

$$\sqrt{625} = \sqrt{\text{hyp}^2}$$

$$25 = \text{hyp}$$

④



$$\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$$

$$16^2 + \text{leg}^2 = 37^2$$

$$\begin{array}{r} 256 + \text{leg}^2 = 1369 \\ - 256 \qquad - 256 \end{array}$$

$$\sqrt{\text{leg}^2} = \sqrt{1113}$$

$$\text{leg} \approx 33.4$$

⑤ I have a triangle with lengths of 7, 8, and 10. Is it a right triangle?

$$7^2 + 8^2 = 10^2 ?$$

$$49 + 64 \neq 100$$

NO!

⑥ Same with 8, $\overset{\text{hyp.}}{\textcircled{10}}$, 6.

$$8^2 + 6^2 = 10^2 ?$$

$$64 + 36 = 100 \checkmark$$

Yes