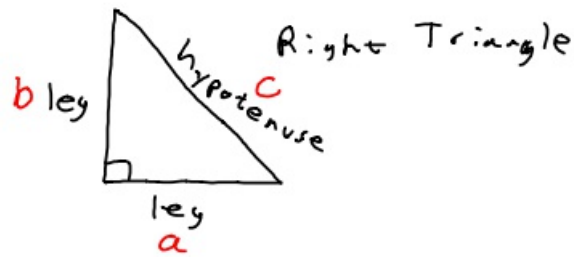


8-23-17 5th Geo

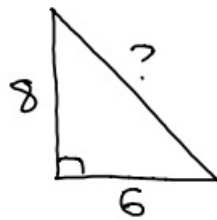


Pythagorean Theorem

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

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

①



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

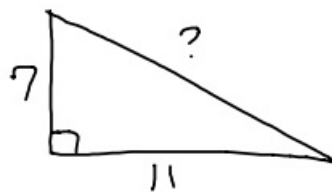
$$6^2 + 8^2 = c^2$$

$$36 + 64 = c^2$$

$$\sqrt{100} = \sqrt{c^2}$$

$$10 = c$$

②



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

$$11^2 + 7^2 = c^2$$

$$121 + 49 = c^2$$

$$\sqrt{170} = \sqrt{c^2}$$

$$13.0 \approx c$$

③



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

$$\text{leg}^2 + 5^2 = 11^2$$

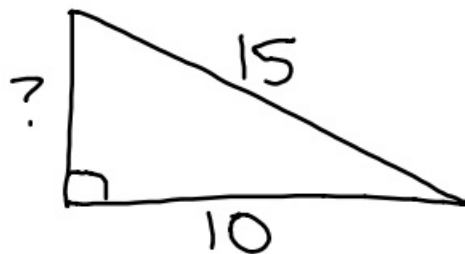
$$\text{leg}^2 + 25 = 121$$

$$\begin{array}{r} -25 \quad -25 \\ \hline \end{array}$$

$$\sqrt{\text{leg}^2} = \sqrt{96}$$

$$\text{leg} \approx 9.8$$

④



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

$$\text{leg}^2 + 10^2 = 15^2$$

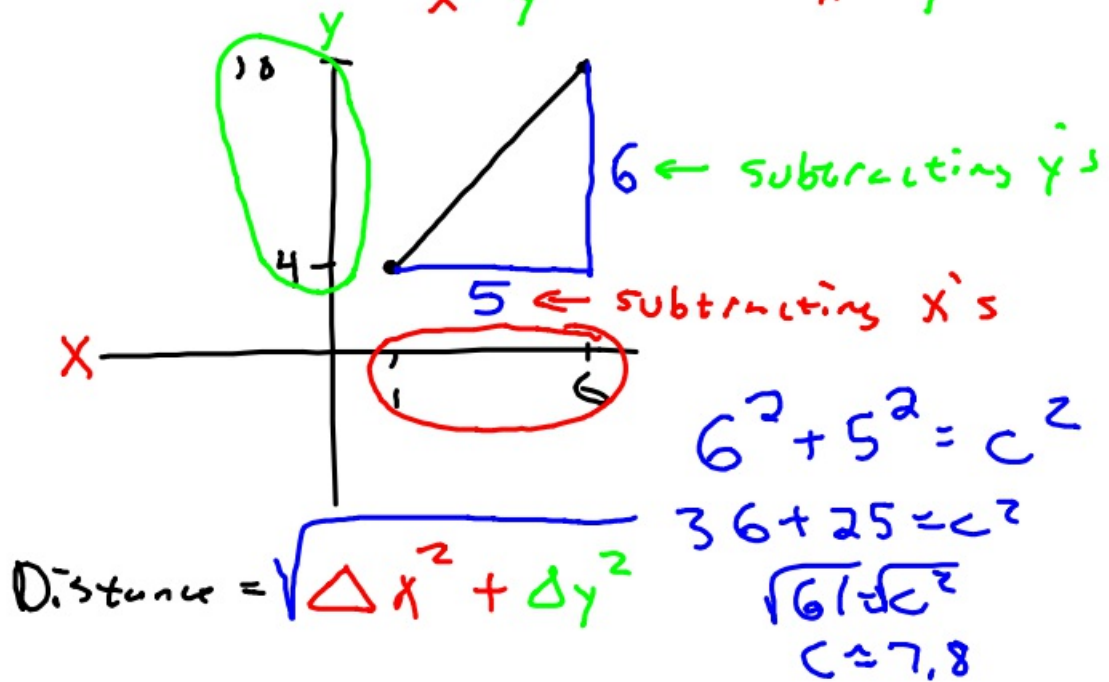
$$\text{leg}^2 + 100 = 225$$

$$\begin{array}{r} -100 \quad -100 \\ \hline \end{array}$$

$$\sqrt{\text{leg}^2} = \sqrt{125}$$

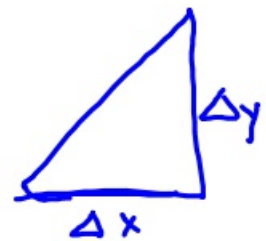
$$\text{leg} \approx 11.2$$

⑤ What is the distance from $(1, 4)$ to $(6, 10)$?



⑥ What is the distance from $(2, 7)$ to $(5, 17)$?

$$D = \sqrt{\Delta x^2 + \Delta y^2}$$



$$D = \sqrt{3^2 + 10^2}$$

$$5 - 2 = 3$$

$$17 - 7 = 10$$

$$D = \sqrt{9 + 100}$$

$$D = \sqrt{109}$$

$$D \approx 10.4$$

⑦ What is the distance between $(-1, 6)$ and $(2, 10)$?

$$D = \sqrt{\Delta x^2 + \Delta y^2}$$

$$\Delta x = 2 - (-1) = 3$$
$$-1 - 2 = -3$$
$$= \sqrt{3^2 + 4^2}$$

$$\Delta y = 10 - 6 = 4$$
$$6 - 10 = -4$$
$$= \sqrt{9 + 16}$$

$$= \sqrt{25}$$
$$= 5$$

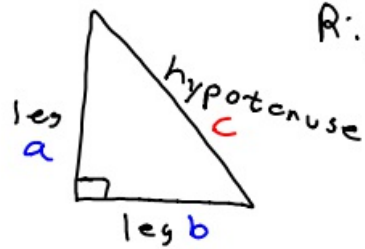
$$(1-5)^2$$
$$(-4)^2 \quad \cancel{-4^2}$$

$$10 - 2^2$$

$$10 - 4$$

8-23-17 6th Geo

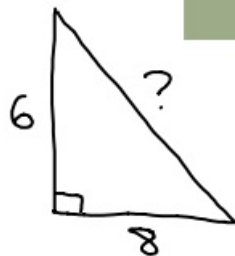
Right Triangle



Pythagorean Theorem

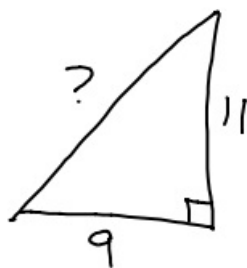
$$\text{leg}^2 + \text{leg}^2 = \text{hypotenuse}^2$$
$$a^2 + b^2 = c^2$$

①



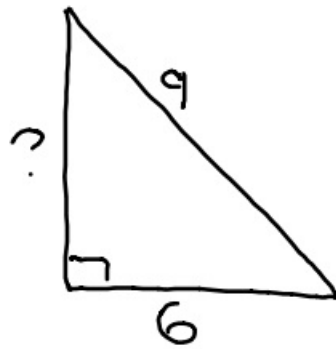
$$\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$$
$$6^2 + 8^2 = c^2$$
$$36 + 64 = c^2$$
$$\sqrt{100} = \sqrt{c^2}$$
$$10 = c$$

②



$$\text{leg}^2 + \text{leg}^2 = \text{hyp}^2$$
$$9^2 + 11^2 = c^2$$
$$81 + 121 = c^2$$
$$\sqrt{202} = \sqrt{c^2}$$
$$c \approx 14.2$$

3



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

$$6^2 + \text{leg}^2 = 9^2$$

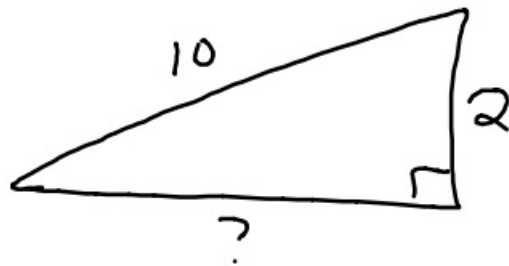
$$36 + \text{leg}^2 = 81$$

$$\begin{array}{r} -36 \\ \hline \end{array}$$

$$\sqrt{\text{leg}^2} = \sqrt{45}$$

$$\text{leg} \approx 6.7$$

4



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

$$2^2 + \text{leg}^2 = 10^2$$

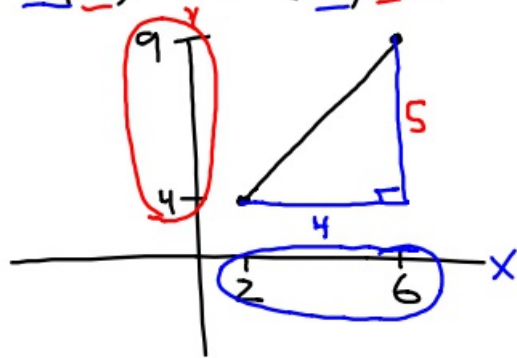
$$4 + \text{leg}^2 = 100$$

$$\begin{array}{r} -4 \\ \hline \end{array}$$

$$\sqrt{\text{leg}^2} = \sqrt{96}$$

$$\text{leg} \approx 9.8$$

What is the distance from
(2, 4) to (6, 9)?



$$\begin{aligned}4^2 + 5^2 &= c^2 \\16 + 25 &= c^2 \\ \sqrt{41} &= \sqrt{c^2} \\ c &= 6.4\end{aligned}$$

$$\text{Distance} = \sqrt{\Delta x^2 + \Delta y^2}$$

⑤ What is the distance
between (2, 10) and (5, 15)?

$$\begin{aligned}\Delta x &= 2-5 \\ &\text{OR} \\ &5-2\end{aligned}$$

$$\begin{aligned}\Delta y &= 15-10 \\ &10-15\end{aligned}$$

$$\begin{aligned}D &= \sqrt{\Delta x^2 + \Delta y^2} \\ &= \sqrt{3^2 + 5^2} \\ &= \sqrt{9+25} \\ &= \sqrt{34} \\ &\approx 5.8\end{aligned}$$

⑥ What is the distance between $(-2, 6)$ and $(2, 16)$?

$$D = \sqrt{\Delta x^2 + \Delta y^2}$$

$$= \sqrt{4^2 + 10^2}$$

$$= \sqrt{16 + 100}$$

$$= \sqrt{116}$$

$$\approx 10.8$$