

Name: _____

Date: Dec 16

Hour: 2

Unit 4A: Day 11: Finding the Length of a Leg

Focus Question: How do I find the length of a leg of a right triangle?

$$5^2 + 9^2 = 12^2$$

$$25 + 81 = 144$$

$$106 = 144$$

False

A. Review Questions

- Is a triangle with side lengths of 5 cm, 12 cm, and 9 cm a right triangle?

a c b

No

- Find the distance between (-2, 3) and (6, -1). Give an exact answer only.

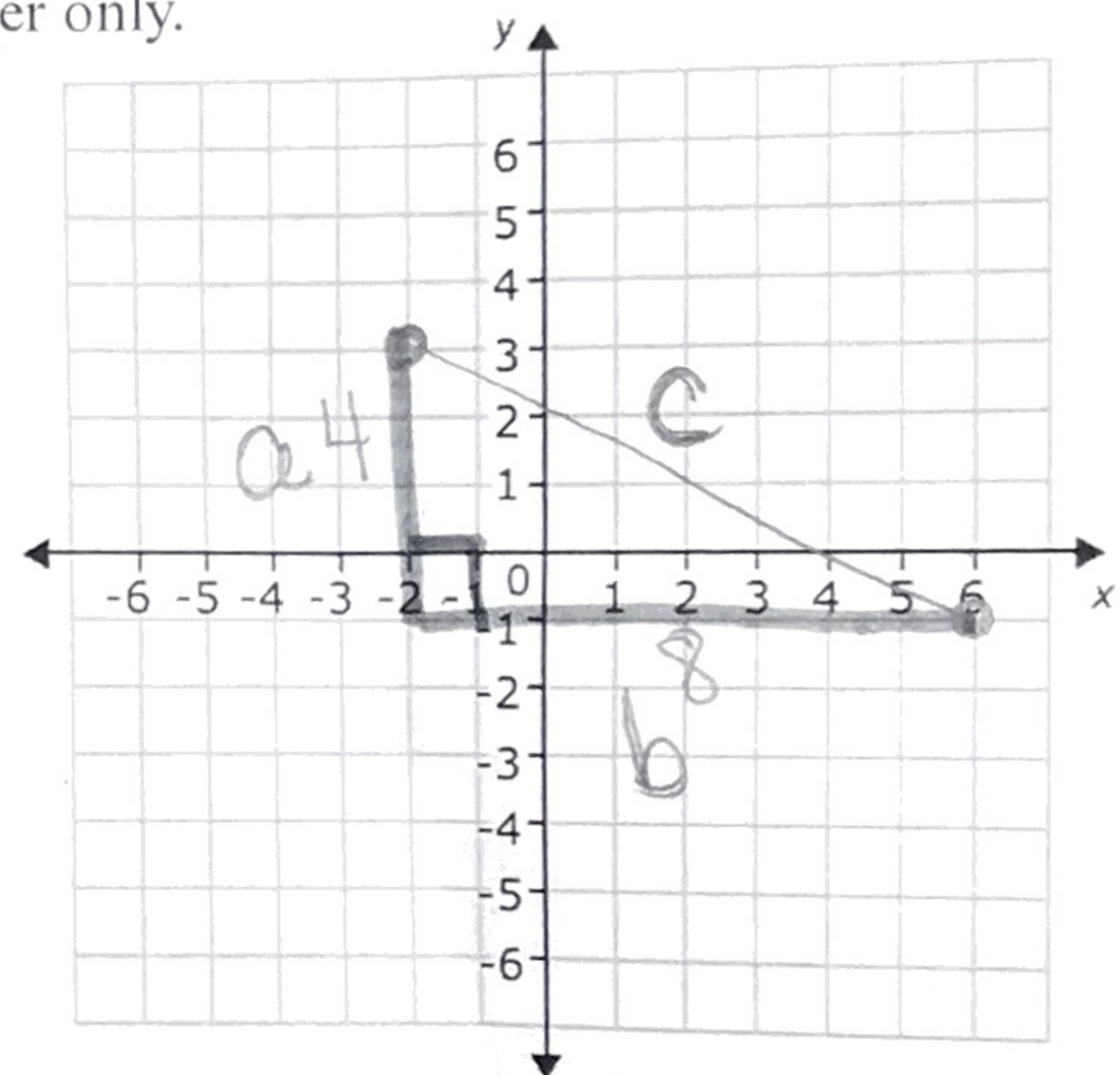
$$4^2 + 8^2 = c^2$$

$$16 + 64 = c^2$$

$$\sqrt{80} = c$$

$$C = \sqrt{80}$$

exact

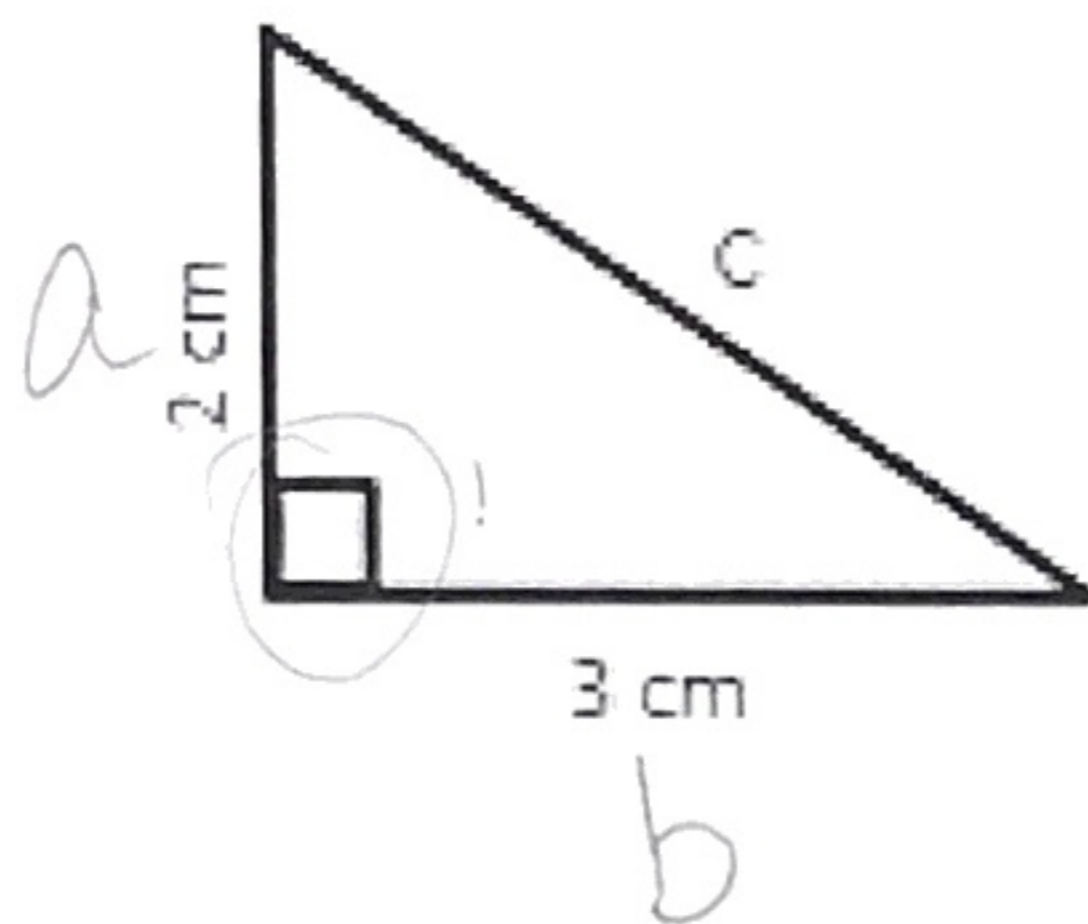


- Find the length of the hypotenuse.

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

$$4 + 9 = c^2$$

$$\sqrt{13} = c$$



$$\sqrt{13} = c \approx 3.61$$

exact approx

B. Length of a leg.

- How is the problem at right different from #3 above?

We know "c" in this one

- Find the missing length.

$$h^2 + 13^2 = 19^2$$

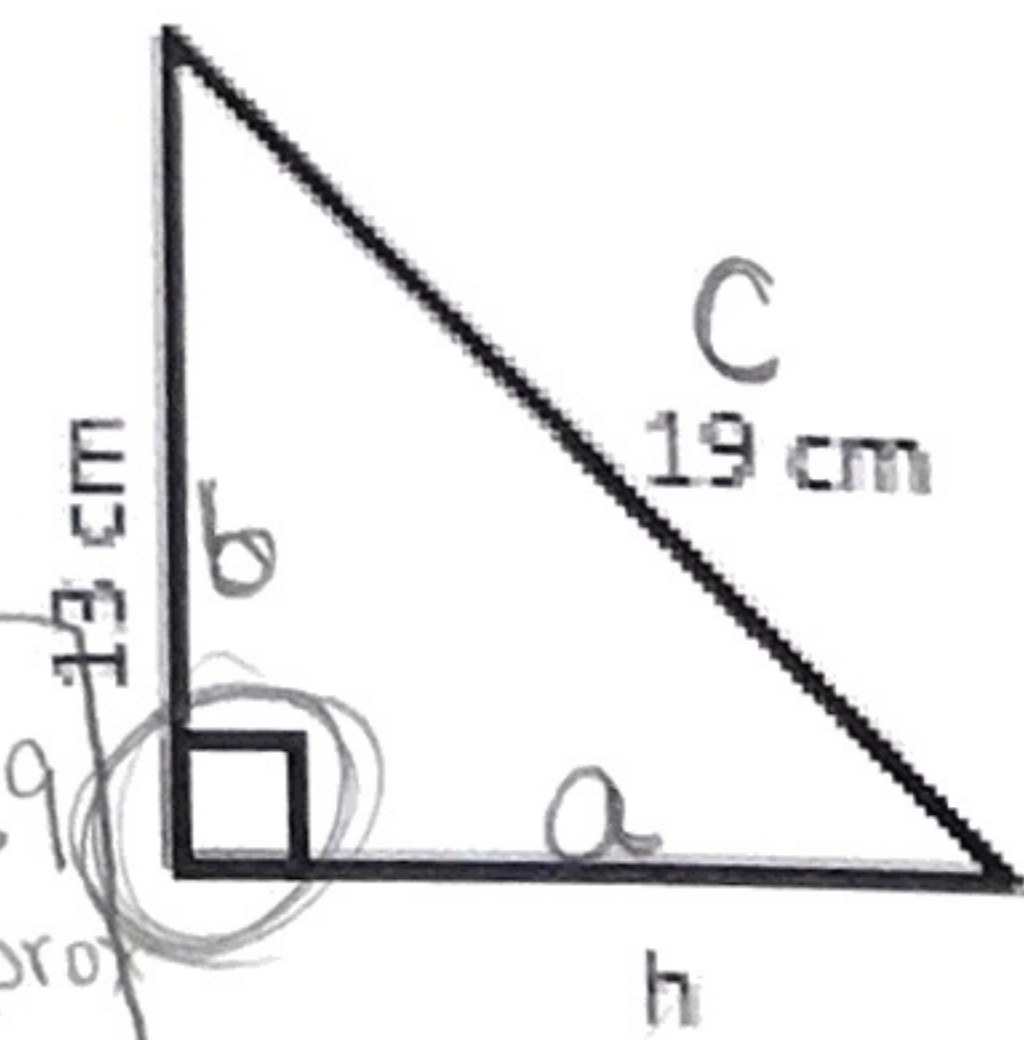
$$h^2 + 169 = 361$$

$$-169 \quad -169$$

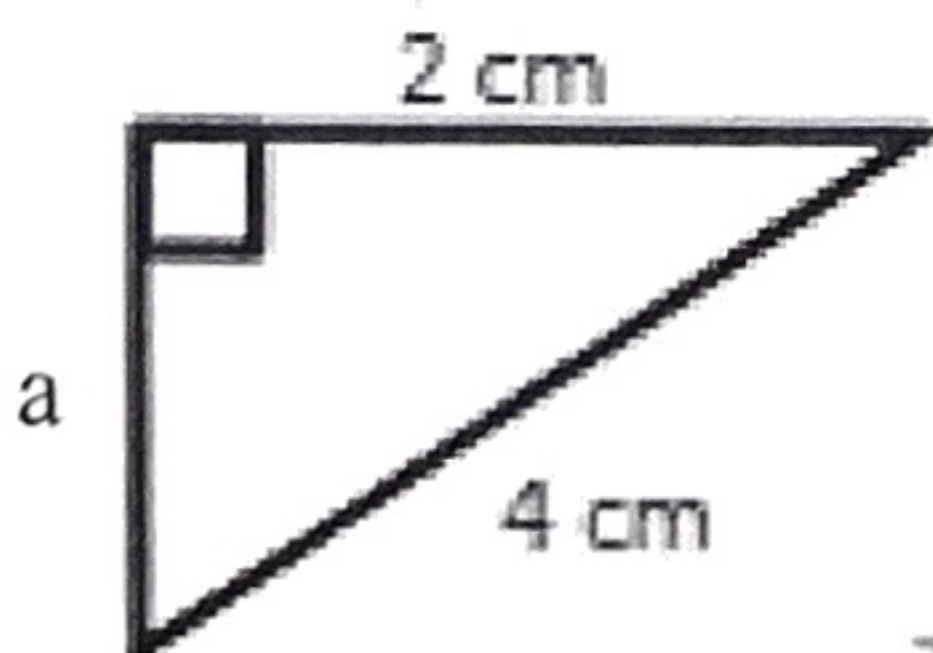
$$\sqrt{h^2} = \sqrt{192}$$

$$h = \sqrt{192} \approx 13.9$$

exact approx



- Find the length of each missing side.



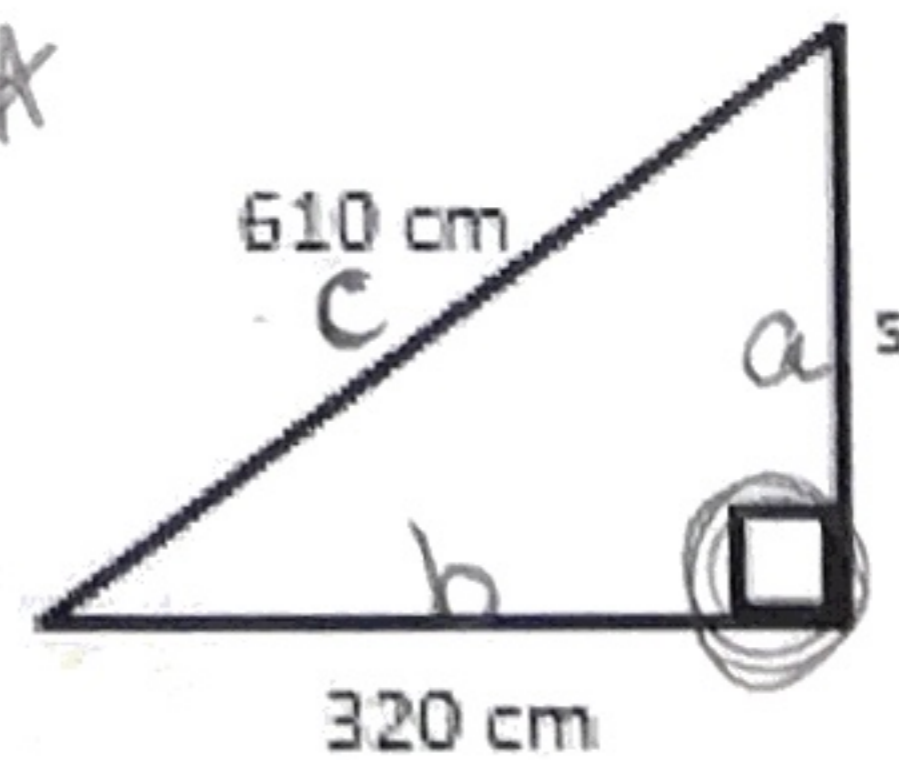
$$a^2 + 2^2 = 4^2$$

$$a^2 + 4 = 16$$

$$-4 \quad -4$$

$$\sqrt{a^2} = \sqrt{12}$$

$$a = \sqrt{12} \approx 3.46$$



$$S = \sqrt{269700}$$

exact

$$S \approx 519.3265$$

approx

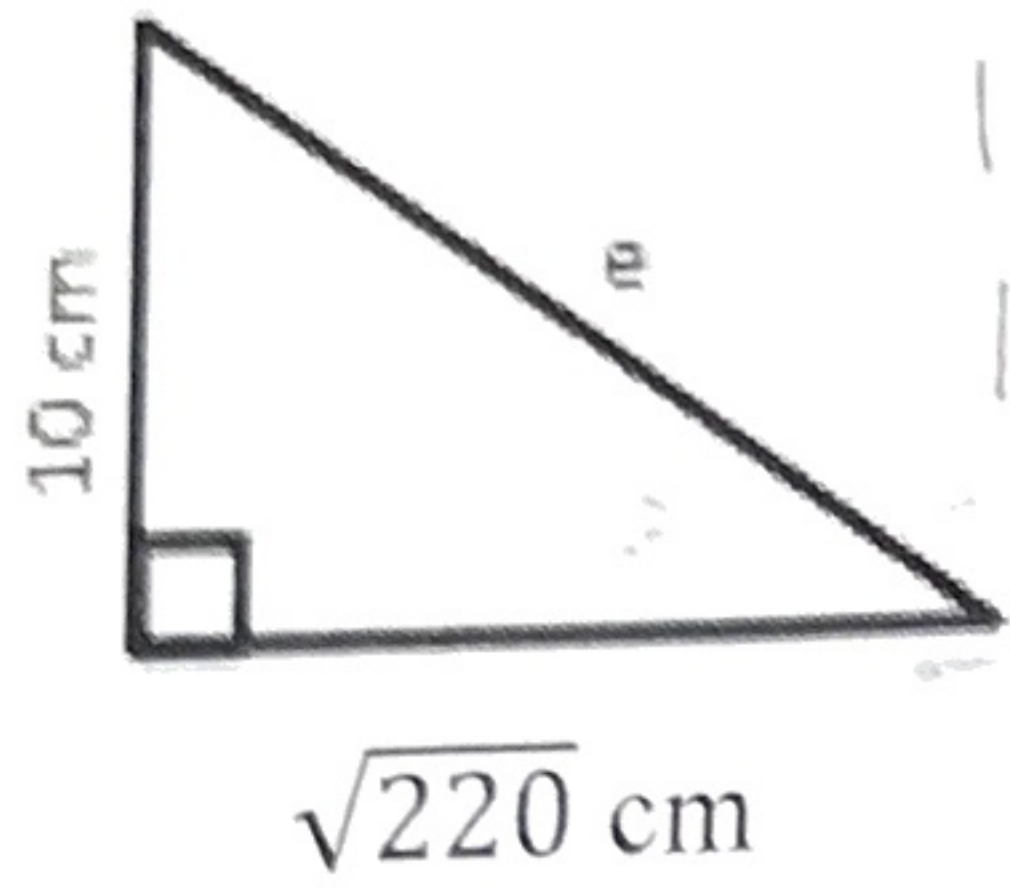
$$s^2 + 320^2 = 610^2$$

$$s^2 + 102400 = 372100$$

$$-102400 \quad -102400$$

$$\sqrt{s^2} = \sqrt{269700}$$

Round to hundredth

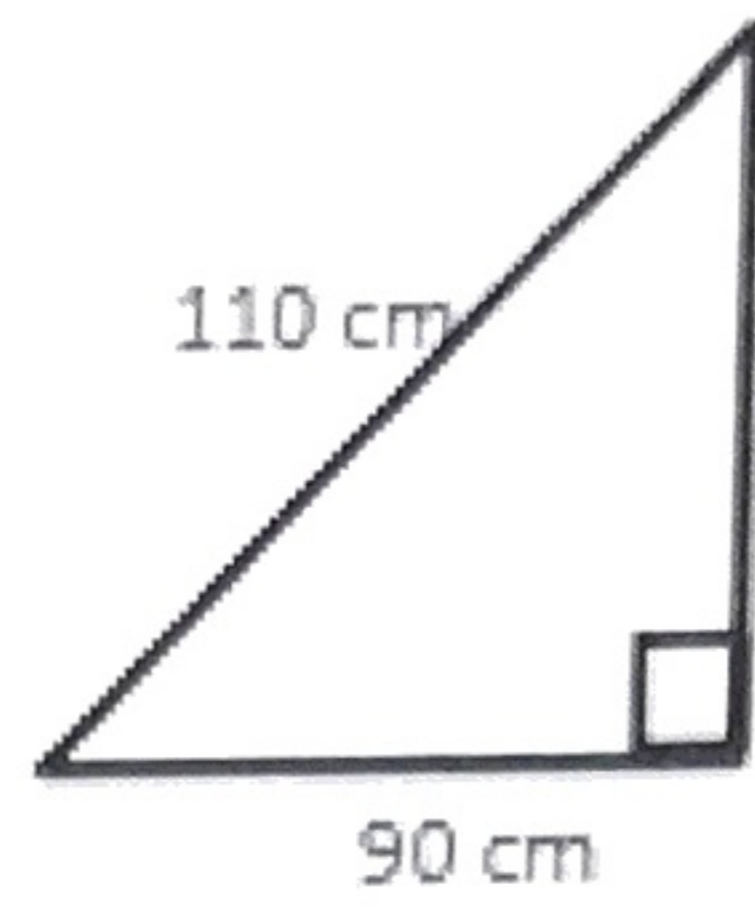


$$10^2 + \sqrt{220}^2 = e^2$$

$$100 + 220 = e^2$$

$$\sqrt{320} \quad \sqrt{e^2}$$

$$e = \sqrt{320} \approx 17.89$$



$$90^2 + f^2 = 110^2$$

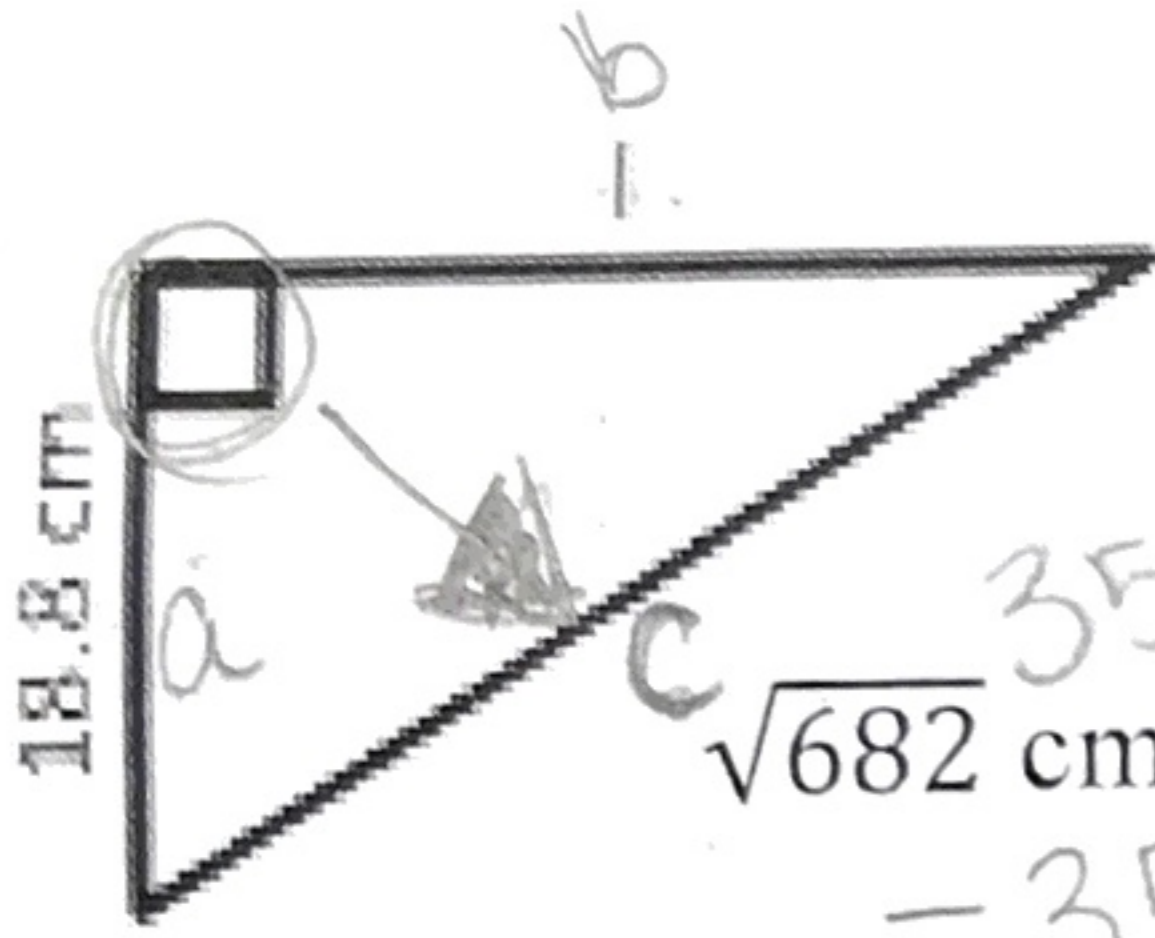
$$8100 + f^2 = 12100$$

$$-8100$$

$$-8100$$

$$\sqrt{f^2} = \sqrt{4000}$$

$$f = \sqrt{4000} \approx 63.25$$



$$18.8^2 + l^2 = \sqrt{682}^2$$

$$353.44 + l^2 = 682$$

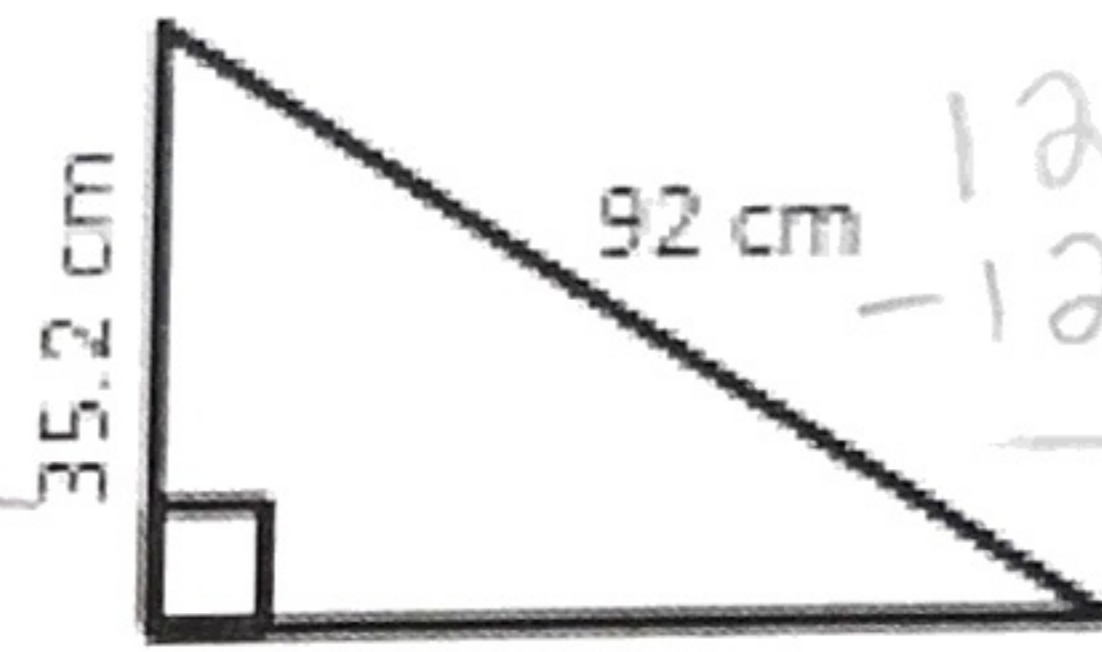
$$-353.44$$

$$-353.44$$

$$\sqrt{l^2} = \sqrt{328.56}$$

$$l = \sqrt{328.56} \approx 18.13$$

ex. app.



$$35.2^2 + p^2 = 92^2$$

$$1239.04 + p^2 = 8464$$

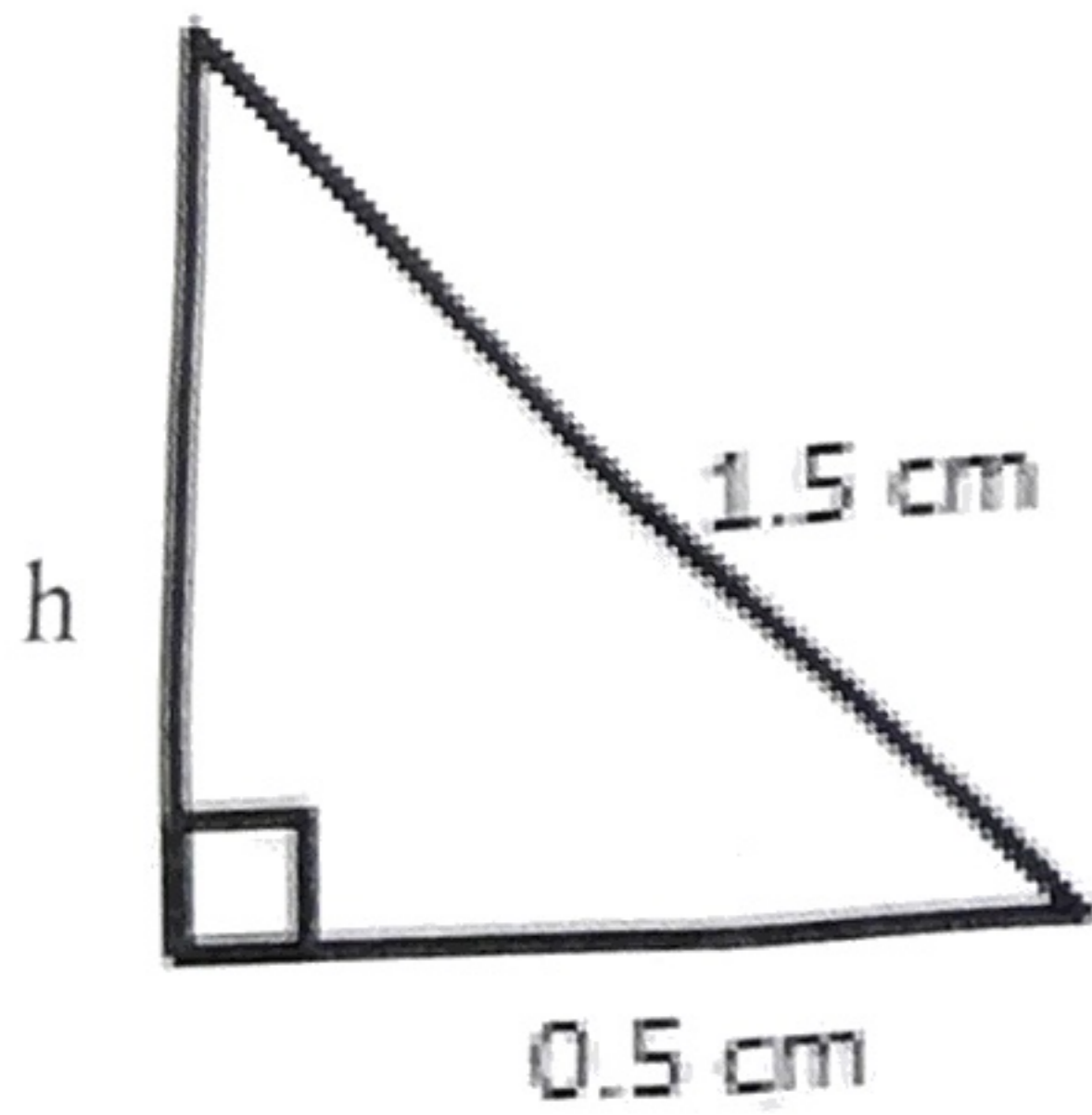
$$-1239.04$$

$$-1239.04$$

$$\sqrt{p^2} = \sqrt{7224.96}$$

$$p = \sqrt{7224.96}$$

$$p \approx 85.00$$



Hugo was asked to find the missing side length in the triangle at the left. His work is below.

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

$$0.5^2 + 1.5^2 = h^2$$

$$0.25 + 2.25 = h^2$$

$$\sqrt{2.5} = \sqrt{h^2}$$

$$1.58 \approx h$$

Explain his error(s) in reasoning.
