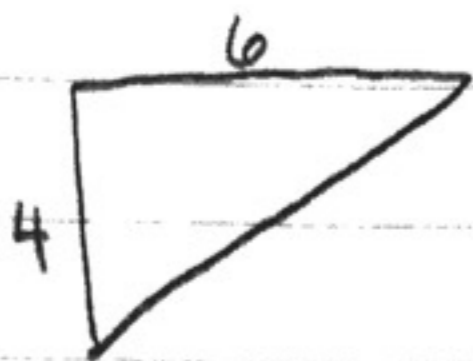


# Pythagorean Theorem Study Guide

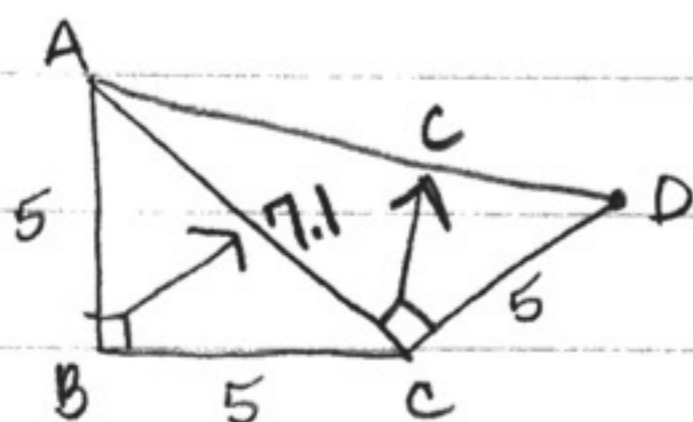
## #11-21

11



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 4^2 + 6^2 &= c^2 \\
 16 + 36 &= c^2 \\
 52 &= c^2 \\
 \sqrt{52} &= \sqrt{c^2} \\
 7.2 &= c
 \end{aligned}$$

12



step 1:

$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 5^2 + 5^2 &= c^2 \\
 25 + 25 &= c^2 \\
 50 &= c^2 \\
 \sqrt{50} &= \sqrt{c^2} \\
 7.1 &= c
 \end{aligned}$$

step 2:

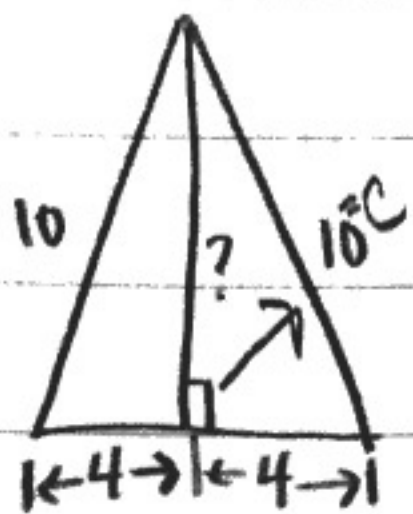
$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 7.1^2 + 5^2 &= c^2 \\
 50.41 + 25 &= c^2 \\
 75.41 &= c^2 \\
 \sqrt{75.41} &= \sqrt{c^2} \\
 \boxed{8.7} &= c
 \end{aligned}$$

(D)

$$5\sqrt{2} = 7.07\dots$$

$$5\sqrt{3} = 8.66\dots$$

14



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

$$4^2 + b^2 = 10^2$$

$$16 + b^2 = 100$$

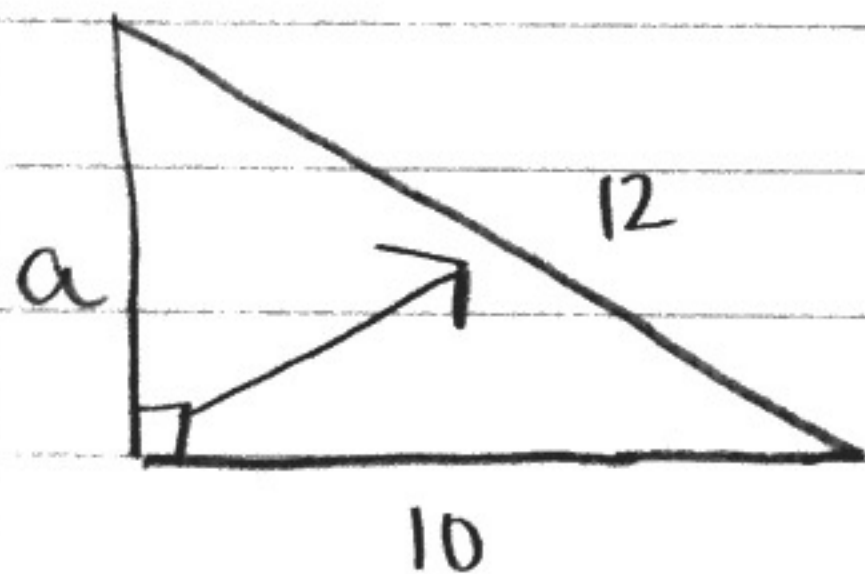
$$\begin{array}{r} -16 \\ \hline \end{array}$$

$$b^2 = 84$$

$$\sqrt{b^2} = \sqrt{84}$$

$$b = 9.2$$

15



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

$$a^2 + 10^2 = 12^2$$

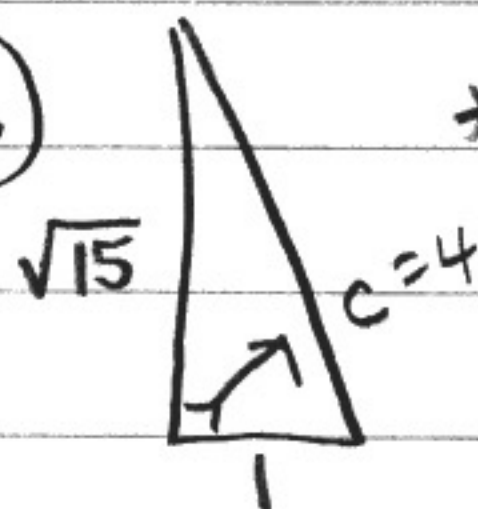
$$a^2 + 100 = 144$$

$$\begin{array}{r} -100 \quad -100 \\ \hline a^2 \quad = 44 \end{array}$$

$$\sqrt{a^2} = \sqrt{44}$$

$$a = \sqrt{44}$$

16



\* Perimeter \*

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

$$(\sqrt{15})^2 + 1^2 = c^2$$

$$15 + 1 = c^2$$

$$16 = c^2$$

$$\sqrt{16} = \sqrt{c^2}$$

$$4 = c$$

Perimeter: add all sides

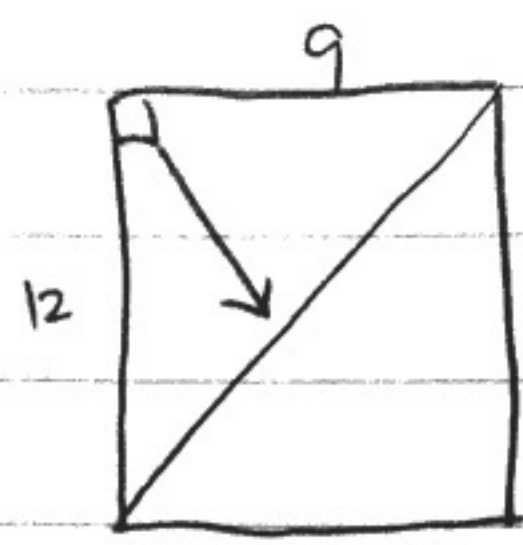
$$1 + 4 + \sqrt{15}$$

$$5 + \sqrt{15}$$

D



17



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

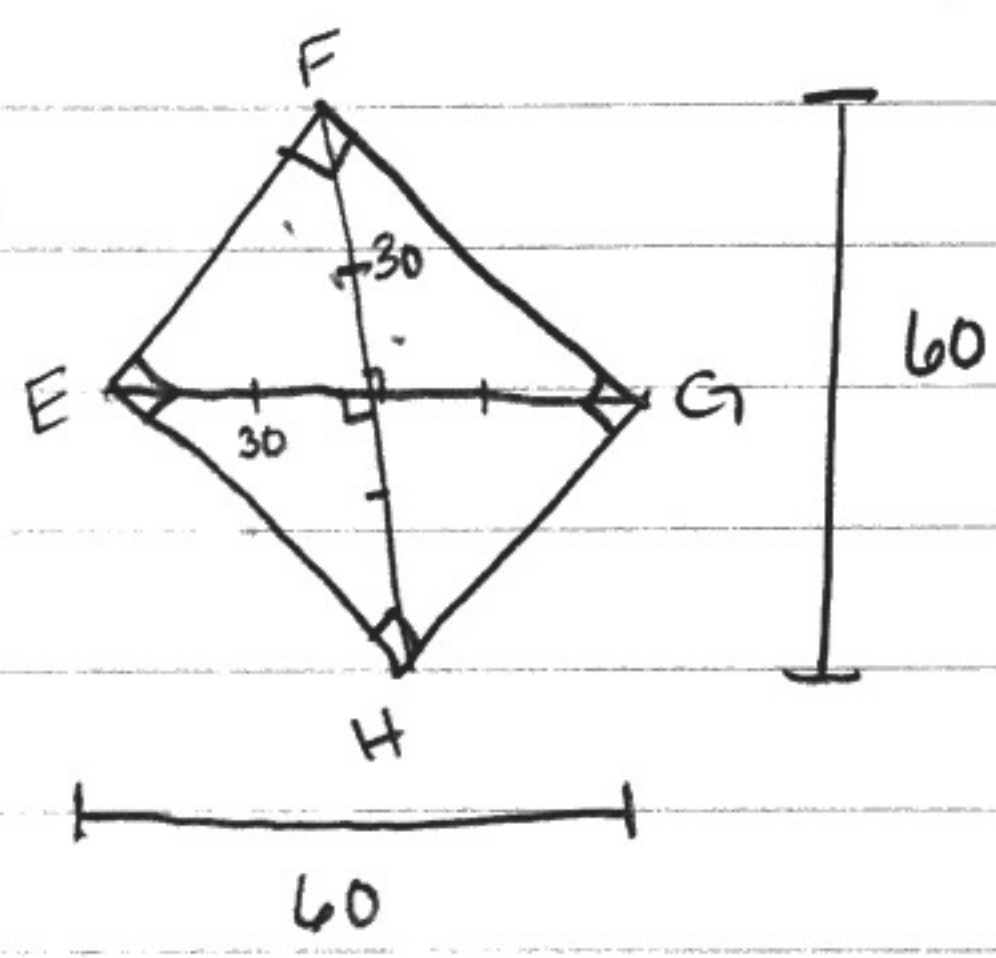
$$12^2 + 9^2 = c^2$$

$$144 + 81 = c^2$$

$$\sqrt{225} = c^2$$

$$\boxed{15 = c}$$

18



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

$$30^2 + 30^2 = c^2$$

$$900 + 900 = c^2$$

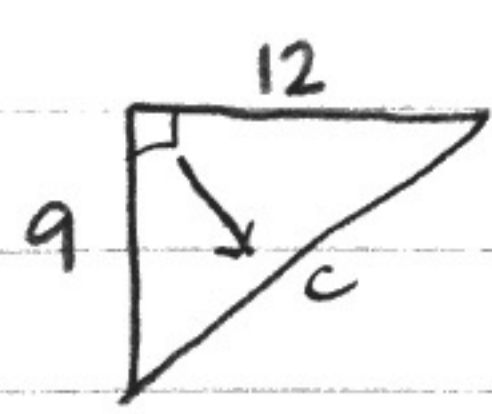
$$1800 = c^2$$

$$\sqrt{1800} = \sqrt{c^2}$$

$$\boxed{42.4 = c}$$

$$\boxed{42 \text{ centimeters}}$$

19



9, 12, 15 Pythagorean Triple!

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

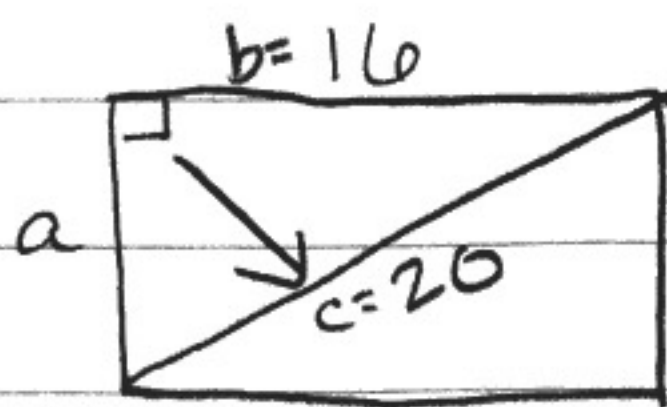
$$9^2 + 12^2 = c^2$$

$$81 + 144 = c^2$$

$$\sqrt{225} = c^2$$

$$15 = c$$

20.



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

$$a^2 + 16^2 = 20^2$$

$$a^2 + 256 = 400$$

$$\begin{array}{r} -256 \quad -256 \\ \hline \end{array}$$

$$a^2 = 144$$

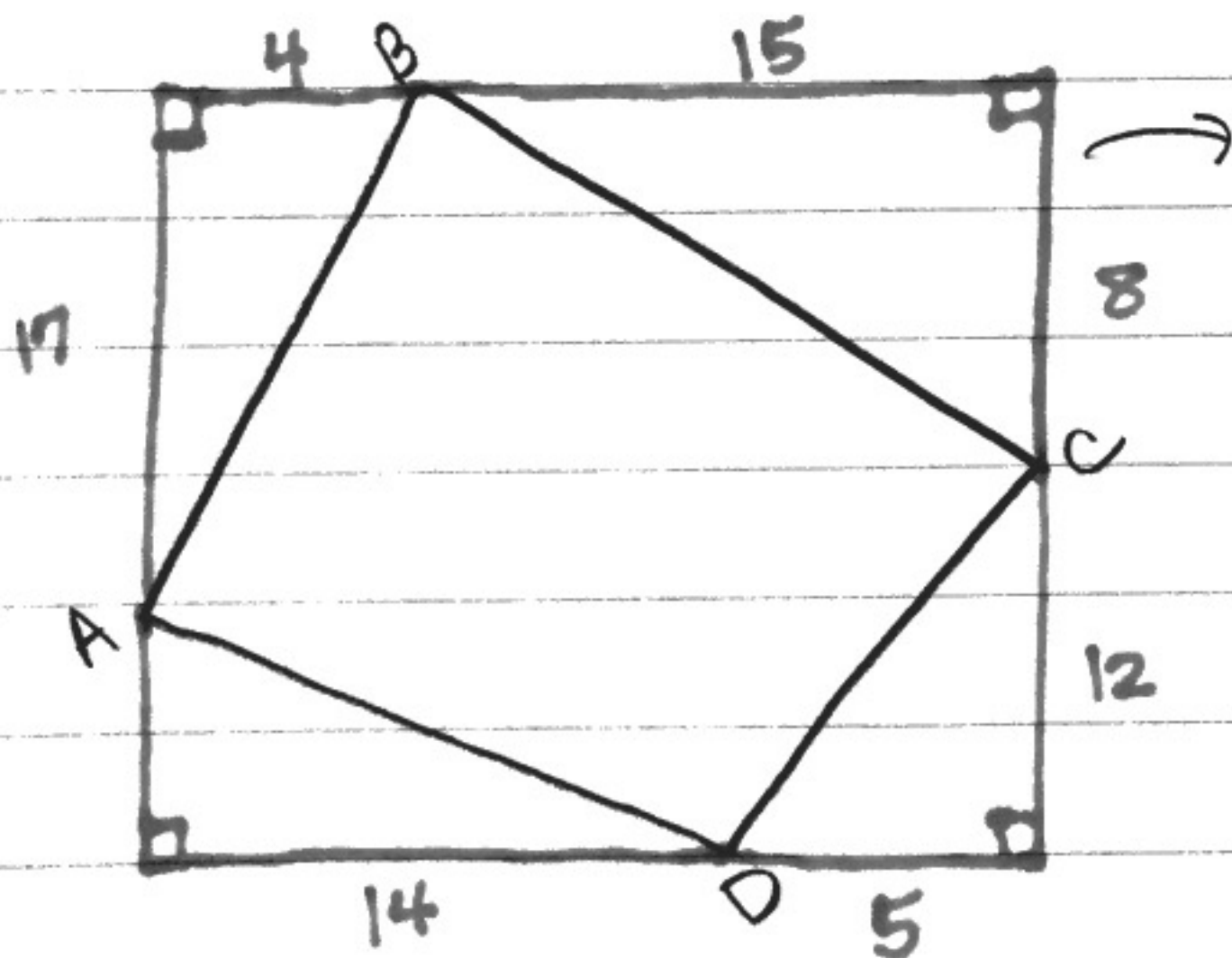
$$\sqrt{a^2} = \sqrt{144}$$

$$\boxed{a = 12}$$

12, 16, 20

Pythagorean  
Triplet!

21.



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

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

$$64 + 225 = c^2$$

$$289 = c^2$$

$$\sqrt{289} = \sqrt{c^2}$$

$$\boxed{17 = c}$$

BC