

Bellwork

01/05/2012

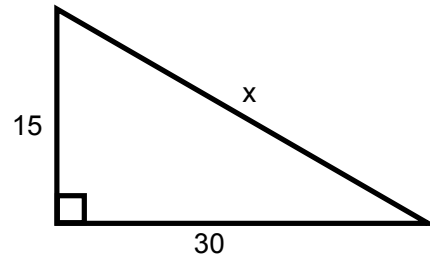
1. Find the length of the hypotenuse of the right triangle.

$$x^2 = 15^2 + 30^2$$

$$x^2 = 225 + 900$$

$$\sqrt{x^2} = \sqrt{1125}$$

$$x = 15\sqrt{5} \approx 33.5$$



2. Find the area of the isosceles triangle.

Note: you need to find h first!

$$51^2 = 24^2 + h^2$$

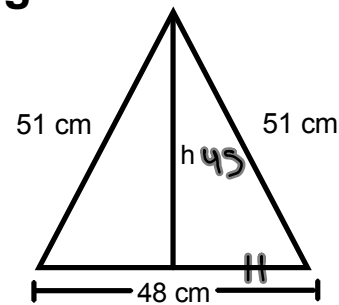
$$\sqrt{h^2} = \sqrt{2025}$$

$$h = 45$$

$$A = \frac{bh}{2}$$

$$A = \frac{45 \cdot 48}{2}$$

$$A = 1080 \text{ cm}^2$$



Geometry

7.2 Use the Converse of the Pythagorean Theorem

Standard(s): 3, 8

Vocabulary:

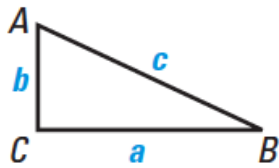
CONCEPT SUMMARY

For Your Notebook

Methods for Classifying a Triangle by Angles Using its Side Lengths

(RIGHT)

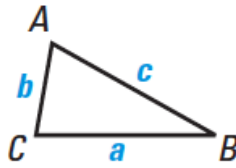
Theorem 7.2



If $c^2 = a^2 + b^2$, then $m\angle C = 90^\circ$ and $\triangle ABC$ is a right triangle.

(ACUTE)

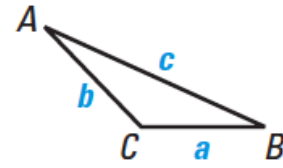
Theorem 7.3



If $c^2 < a^2 + b^2$, then $m\angle C < 90^\circ$ and $\triangle ABC$ is an acute triangle.

(OBTUSE)

Theorem 7.4



If $c^2 > a^2 + b^2$, then $m\angle C > 90^\circ$ and $\triangle ABC$ is an obtuse triangle.

Classifying a Triangle

Decide whether the numbers can represent a triangle. If so, classify the triangle as acute, obtuse, or right.

10, 11, 14

Yes!

$$c^2 \quad a^2 + b^2$$

$$14^2 \quad 10^2 + 11^2$$

$$196 \quad 100 + 121$$

$$196 < 221$$

Acute

10, 15, $5\sqrt{13}$

Yes!

$$(5\sqrt{13})^2 \quad 10^2 + 15^2$$

$$325 \quad 100 + 225$$

$$325 = 325$$

Right!

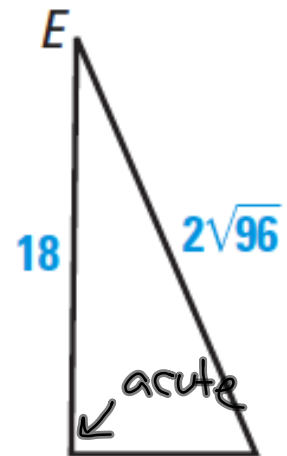
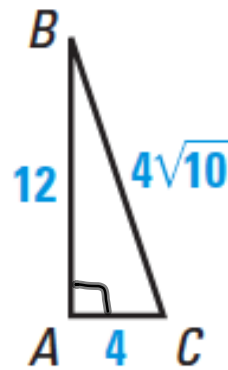
15, 20, 36

No!

Using Diagrams

Complete the statement with $<$, $>$, or $=$, if possible. If it is not possible, explain why.

$$m\angle A \underline{>} m\angle D$$

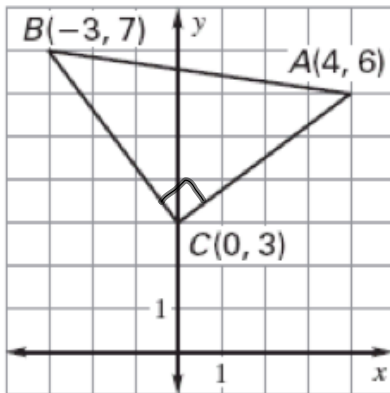


$$m\angle B + m\angle C \underline{<} m\angle E + m\angle F$$

90° 92°

$$\begin{aligned} (2\sqrt{96})^2 & \quad 18^2 + 8^2 \\ 192 & < 388 \end{aligned}$$

Use Coordinates with the Converse

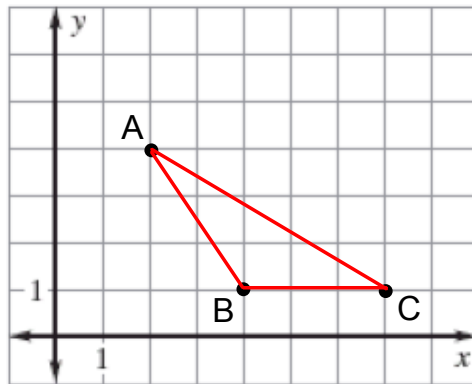
Determine if $\triangle ABC$ is a right, acute, or obtuse triangle.

$$AB = \frac{6-7}{4-(-3)} = \frac{-1}{7}$$

$$AC = \frac{3-6}{0-4} = \frac{-3}{-4} = \frac{3}{4}$$

$$BC = \frac{3-7}{0-(-3)} = \frac{-4}{3}$$

Right!

 $A(2, 4), B(4, 1), C(7, 1)$ 

$$AB = \frac{1-4}{4-2} = \frac{-3}{2}$$

$$BC = \frac{1-1}{7-4} = \frac{0}{3} = 0$$

$$AC = \frac{1-4}{7-2} = \frac{-3}{5}$$

$$AB = \sqrt{13} \approx 3.6$$

$$BC = 3$$

$$AC = \sqrt{34} \approx 5.8$$

$$(\sqrt{34})^2 \quad 3^2 + (\sqrt{13})^2$$

$$34 \quad 9 + 13$$

$$34 > 22$$

Obtuse

Homework Assignment

Worksheet 7.2B

