

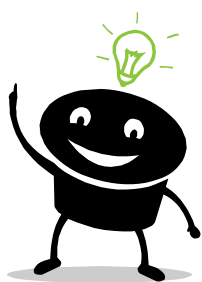
5.7 Day 2: The Pythagorean Theorem

Flashback: How can you determine if 3 sides create a triangle?

Converse of Pythagorean Theorem:

if $a^2 + b^2 = c^2$, then it is a right Δ .

What if it is not a right triangle?



BIG

IDEA!

 $c^2 = a^2 + b^2$ then the triangle is Right Δ $c^2 > a^2 + b^2$ then the triangle is obtuse Δ $c^2 < a^2 + b^2$ then the triangle is acute Δ

Directions: Tell if the measures can be side lengths of a triangle.

If so, classify the triangle as acute, obtuse, or right.

Ex 1: 5, 7, and 10

$$\begin{array}{l} \Delta \text{check} \\ 5+7 > 10 \\ \text{yes} \end{array} \quad \begin{array}{l} 5^2 + 7^2 \\ 74 < 100 \end{array} \quad \begin{array}{l} 10^2 \\ 100 \end{array} \quad \text{obtuse}$$

Ex 2: 8, 11, and 13

$$\begin{array}{l} \Delta \text{check} \\ 8+11 > 13 \\ \text{yes} \end{array} \quad \begin{array}{l} 8^2 + 11^2 \\ 185 > 169 \end{array} \quad \begin{array}{l} 13^2 \\ 169 \end{array} \quad \text{acute}$$

Ex 3: 5, 8, and 17

$$\begin{array}{l} \Delta \text{check} \\ 5+8 > 17 \\ \text{no} \end{array} \quad \left. \vphantom{\begin{array}{l} \Delta \text{check} \\ 5+8 > 17 \\ \text{no} \end{array}} \right\} \text{not a } \Delta$$

Ex 4: 7, 10, and 12

$$\begin{array}{l} \Delta \text{check} \\ 7+10 > 12 \\ \text{yes} \end{array} \quad \begin{array}{l} 7^2 + 10^2 \\ 149 > 144 \end{array} \quad \begin{array}{l} 12^2 \\ 144 \end{array} \quad \text{acute}$$

MAGNETS! Classify the triangle as acute, obtuse, right, or not a triangle.

$$\begin{array}{l} 1) \ 9, 11, 15 \\ 9+11 > 15 \\ \text{yes} \end{array} \quad 202 < 225 \quad \underline{\text{obtuse } \Delta}$$

$$\begin{array}{l} 2) \ 9, 40, 41 \\ 9+40 > 41 \\ \text{yes} \end{array} \quad 1681 = 1681 \quad \underline{\text{right } \Delta}$$

$$\begin{array}{l} 3) \ 1.5, 1.75, \text{ and } 3.25 \\ 1.5+1.75 > 3.25 \\ \text{NO} \end{array} \quad \underline{\text{Not a } \Delta}$$

$$\begin{array}{l} 4) \ 5.9, 6, \text{ and } 8.4 \\ 5.9+6 > 8.4 \\ \text{yes} \end{array} \quad 70.81 > 70.56 \quad \underline{\text{acute } \Delta}$$