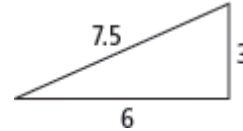


UNIT 6  
ASSIGNMENT #5

SNOW DAY HOMEWORK  
The Pythagorean Theorem and It's Converse

**OBJECTIVE: S.W.B.A.T. use the Pythagorean theorem to find missing triangle side lengths AND determine if triangle is right, acute, or obtuse.**

There are two sets of note cards below that show how to determine if this triangle is *right*, *acute*, or *obtuse*. The set on the left explains the thinking. The set on the right shows the steps. Write the steps and the thinking in the correct order.



**Think Cards**

Conclude that the triangle is obtuse.

Substitute to find  $c^2$ .

Substitute to find  $a^2 + b^2$ .

Compare  $a^2 + b^2$  and  $c^2$ .

Choose a and b as the shorter sides and c as the longest side.

**Write Cards**

$$a = 3, b = 6, c = 7.5$$

$$c^2 = (7.5)^2 = 56.25$$

$$45 < 56.25$$

$$\begin{aligned} a^2 + b^2 &= 3^2 + 6^2 \\ &= 9 + 36 = 45 \end{aligned}$$

Because  $a^2 + b^2 < c^2$ , the triangle is obtuse.

**First**, you should

**Second**, you should

**Next**, you should

**Then**, you should

**Finally**, you should

**Step 1**

**Step 2**

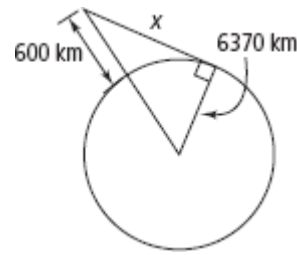
**Step 3**

**Step 4**

**Step 5**

## **THINK ABOUT A PLAN: *The Pythagorean Theorem and It's Converse***

**Astronomy** The Hubble Space Telescope orbits 600 km above Earth's surface. Earth's radius is about 6370 km. Use the Pythagorean Theorem to find the distance  $x$  from the telescope to Earth's horizon. Round your answer to the nearest ten kilometers. (Diagram is not to scale.)



### **Know**

1. Write the Pythagorean Theorem.
2. Look at the diagram. What could replace  $a$  and  $b$  in the Pythagorean Theorem?

---

### **Need**

3. How can you find the value of  $c$ , the hypotenuse of the right triangle?

---

4. What is the value of  $c$ ?
5. Substitute the known and unknown values for  $a$ ,  $b$ , and  $c$ .

### **Plan**

6. How can you find the value of  $x^2$ ?

---

7. What is the value of  $x^2$ ?
8. How can you find the value of  $x$ ?

---

9. What is the value of  $x$ , to the nearest 10 kilometers?
10. Is your answer reasonable? Explain.

---