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## STUDENT MATERIALS

### ROUND 1 – PLAY IT

Read each description. If it is “fake” and you cannot make the triangle, X that box. If it makes a real triangle, use your tools to construct it. Construct a second unique triangle if possible.

1. Triangle with two or more obtuse angles.

☒ FAKE! Check this box if this describes an impossible triangle. Write how you know in the space below.

Make it: If possible, construct a triangle.

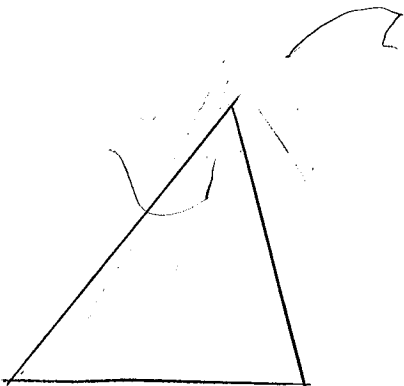
this is fake, this is because it is impossible to make a triangle without 90 degree angles.

If possible, construct another unique triangle.

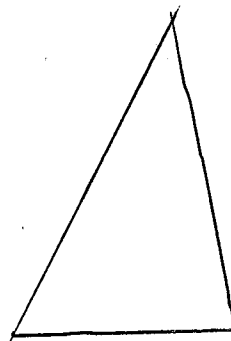
2. Triangle with a side length of 5 centimeters that connects angles of  $60^\circ$  and  $80^\circ$ .

☐ **FAKE!** Check this box if this describes an impossible triangle. Write how you know in the space below.

Make it: If possible, construct a triangle.



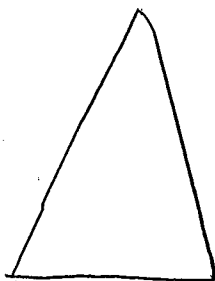
If possible, construct another unique triangle.



3. A triangle with an angle of  $50^\circ$  and side lengths of 4 cm and 4 cm.

☐ **FAKE!** Check this box if this describes an impossible triangle. Write how you know in the space below.

Make it: If possible, construct a triangle.



If possible, construct another unique triangle.

## ROUND 2 – COMPLETE IT

Part of a description for a triangle is given and the type of triangle that it should describe. Complete the missing fact to complete each game show question.

4. This triangle is FAKE. Complete the fact to make a triangle that cannot be constructed.

FACT 1: The two longest sides of the triangle are 5 inches and 8 inches.

FACT 2: The shortest side is 1 inches. (Must be a number between 0 and 5.)

5. This triangle is REAL. Complete the fact to make a triangle that could be constructed.

FACT 1: The two shortest sides of the triangle are 5 inches and 8 inches.

FACT 2: The longest side is 10 inches. (Must be a number greater than 8.)

6. This triangle is FAKE. Complete the fact to make a triangle that cannot be constructed.

The angles of the triangle are 6, 1 and 25 degrees.

7. This triangle is REAL and would make one unique triangle. Create three of your own facts:

FACT 1: the angles of the triangle 5, 10 and 90 degrees

FACT 2: the angles of the triangle 2, 4 and 60 degrees

FACT 3: the angles of the triangle 9, 12 and 90 degrees

**ROUND 3 – REFLECTION**

Write your responses to each of the following reflection questions:

1. What strategies did you use to decide whether the triangle could be made or whether it was a fake?

I tried using my ruler to help  
but am not sure how to properly  
use it.

2. Which types of clues are easiest to use when constructing triangles (given all 3 sides, all 3 angles or a combination of sides and angles)? Why do you think this is?

all 3 sides would be easiest  
to make