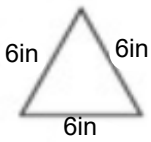
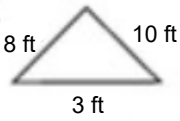
Chapter 6
Geometry & Measurement

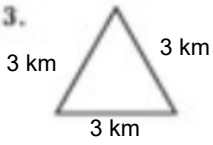
Lesson 2

Not drawn to scale

Classify each triangle. Write *isosceles*, *scalene*, or *equilateral*.

1. 

2. 

3. 

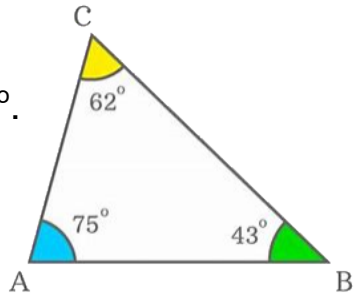
2) Sketch a scalene triangle and put on measurements as examples of side lengths

Lesson 2 Name & Sort Triangles by angles only

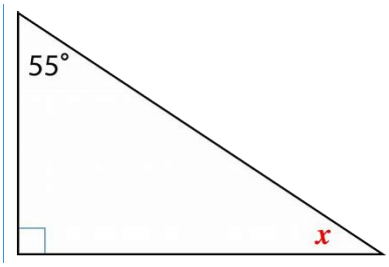
STUDY

We can name triangles by the type of interior angles.

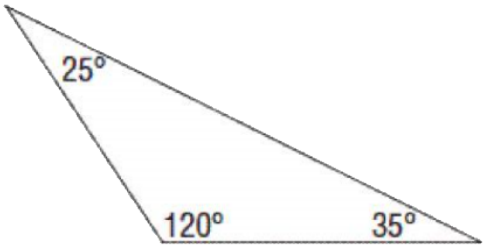
An acute triangle has ALL angles LESS than 90º.



A right triangle has one angle that is 90º.



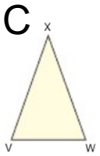
An obtuse triangle has one angle that is GREATER than 90º.

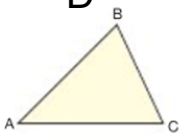


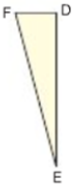
Acute	Right	Obtuse

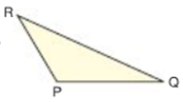
A 

B 

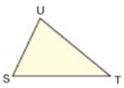
C 

D 

E 

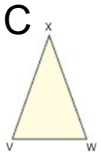
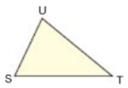
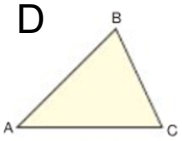
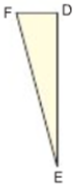
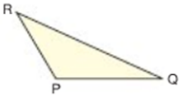
F 

G 

H 

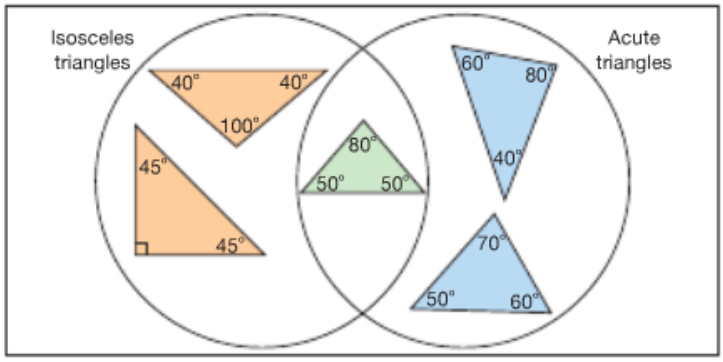
Put the triangles in the correct category, based on their angles.

Solution is on the next slide

Acute	Right	Obtuse
C  G  H  D 	B  E 	A  F 

Solutions

➤ We can sort triangles in a Venn diagram.
For example, choose the sorting rule "Isosceles triangles" and "Acute triangles."



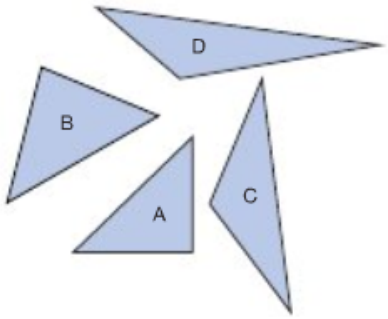
The triangles in the left loop have 2 equal angles.
The triangles in the right loop have all angles less than 90°.
The triangle in the overlap has 2 equal angles and all angles less than 90°.

Since no protractors just answer #3, #4 using what you know about angle sum of a triangle

page 207 #3

Page 208 #4

3. Akna drew these triangles. He noticed there were at least two acute angles in each triangle he drew.
Akna made this conclusion: "All triangles must have at least two acute angles."
Do you agree?
Why or why not?

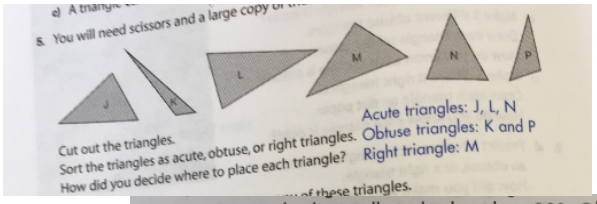


4. Is each statement true or false?
Use pictures, words, or numbers to explain your thinking.
   a) A triangle can have more than one obtuse angle.
   b) A triangle can have only one 90° angle.
   c) A triangle can have 3 acute angles.

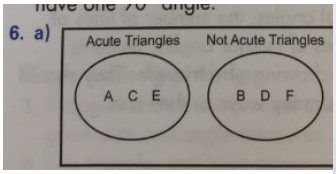
Solutions to #3, & 4 are on the next slide

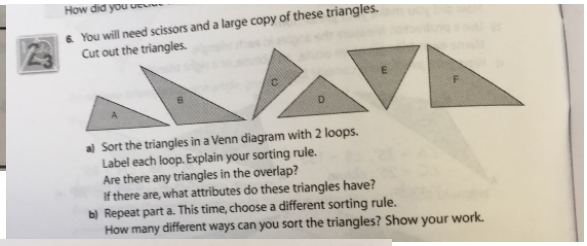
3. Yes, all triangles must have at least two acute angles. When one angle is obtuse or right, then the other angles must be acute or the angle sum would be greater than 180°. An acute triangle has 3 acute angles, which is "at least" 2.

4. a) The sum of 2 obtuse angles would be greater than 180°.
   b) The sum of 2 right angles would be 180° and there are no degrees left for the third angle.
   c) All acute triangles have 3 acute angles.



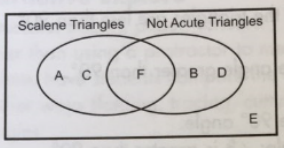
5. Acute triangles have all angles less than 90°. Obtuse triangles have one angle greater than 90°. Right triangles have one 90° angle.





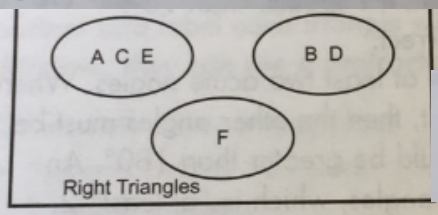
There is no overlap because a triangle cannot be both acute and not acute.

b)



There is a triangle in the overlap. Triangle F is a right triangle (not acute) with all sides of different lengths (scalene).

7. Sort the triangles in question 6 using a Venn diagram with 3 loops. Record your work. Do any of the loops overlap? Why or why not?



None of the loops overlap because a triangle is either acute or obtuse or right. It cannot be two types at once.

8. a) Can an obtuse triangle be an equilateral triangle? Explain. No
b) Can a right triangle be an isosceles triangle? Explain. Yes

8. a) An equilateral triangle has three 60° angles. An obtuse triangle has one angle greater than 90°.

b) A right triangle can have 2 sides of the same length.

REFLECT: I can describe a triangle by the number of equal sides, the number of equal angles, the number of lines of symmetry, and by the types of interior angles. Students' answers should include a drawing of a triangle. They should describe the triangle in as many ways as they can.