



3rd  
Basic

4th  
Advanced

# Helping With Math

USA  
GRADES

## Isosceles Triangles

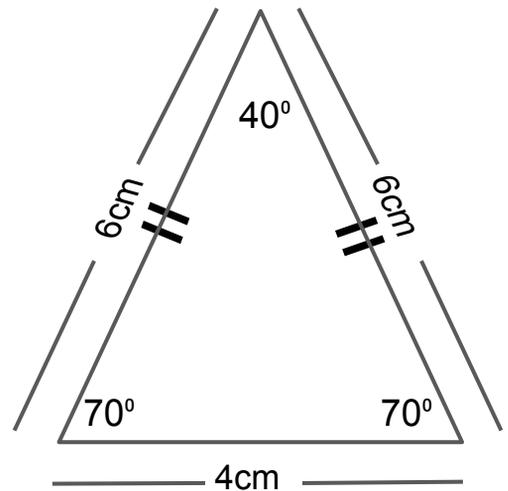
*Suitable for students  
aged 7-9*



This pack is suitable for learners aged 7-9 years old or 3rd to 4th graders (USA). The content covers fact files and relevant basic and advanced activities involving isosceles triangles.



An **isosceles triangle** is a triangle with two sides of equal measurement. As a result, this kind of triangle has two angles with equal measurement.

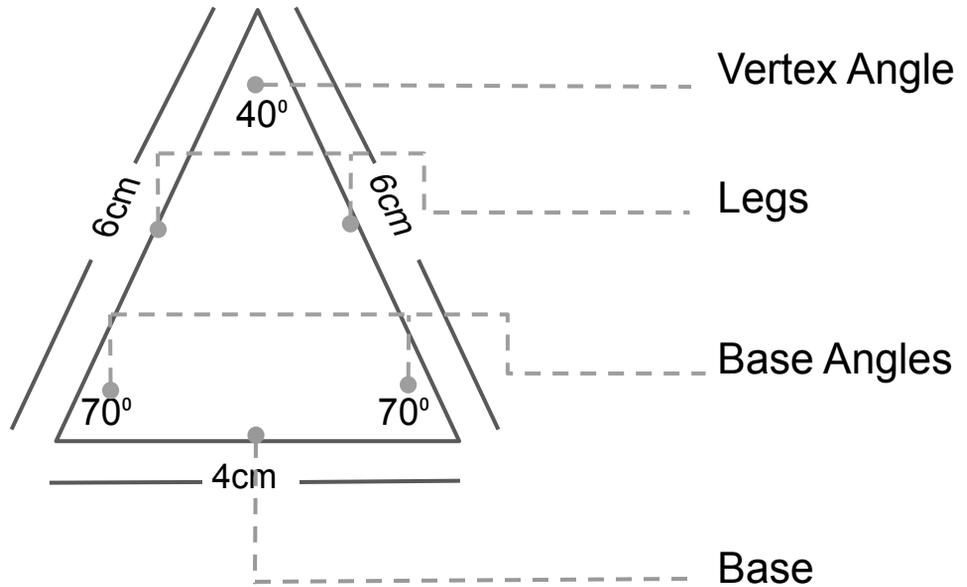
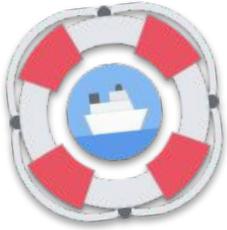


### PARTS OF AN ISOSCELES TRIANGLE

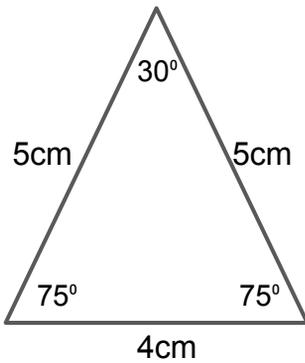
- **Legs:** the two equal sides of an isosceles triangle.
- **Base:** the unequal side of an isosceles triangle.
- **Vertex Angle:** the angle of the two equal sides of an isosceles triangle.
- **Base Angle:** the angles on the base of an isosceles triangle.



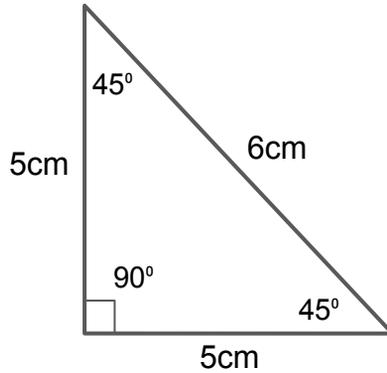
## PARTS OF AN ISOSCELES TRIANGLE



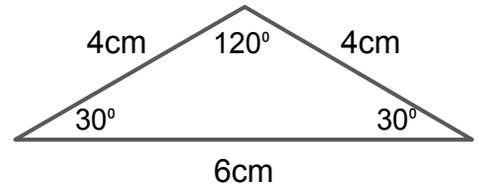
## TYPES OF ISOSCELES TRIANGLES



Isosceles Acute Triangle



Isosceles Right Triangle



Isosceles Obtuse Triangle

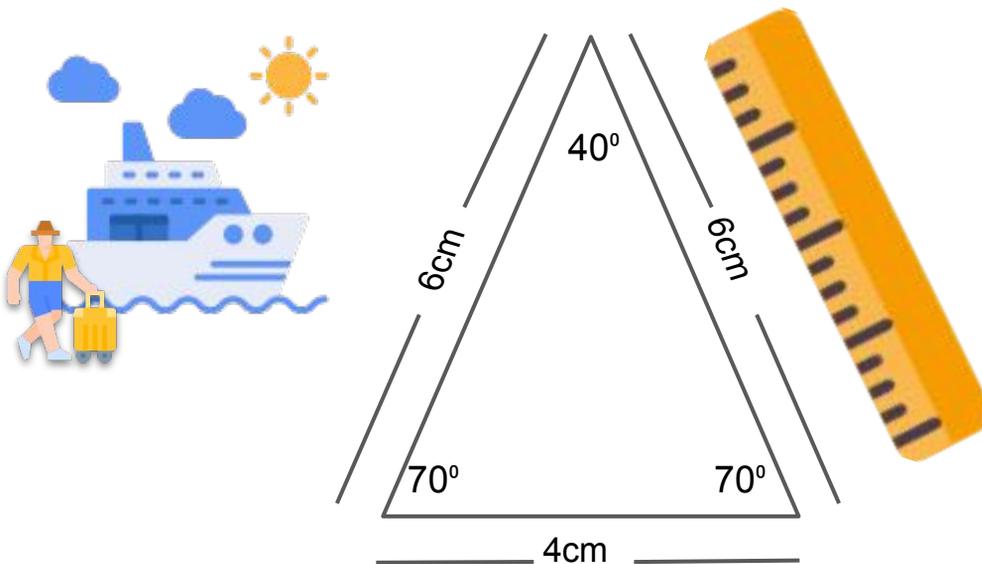
- ★ **Isosceles Acute Triangle:** an isosceles triangle with all three angles measuring less than  $90^\circ$
- ★ **Isosceles Right Triangle:** an isosceles triangle with the vertex angle measuring  $90^\circ$  and the base angles measure  $45^\circ$ .
- ★ **Isosceles Obtuse Triangle:** an isosceles triangle with the vertex angle measuring more than  $90^\circ$ .



## MEASURING ISOSCELES TRIANGLES

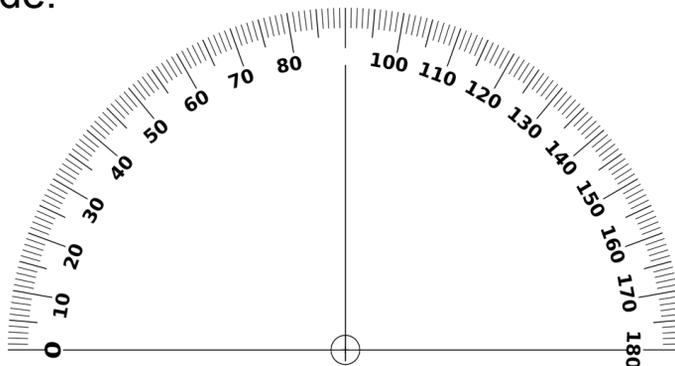
An isosceles triangle is defined by having two sides with equal measurements and two angles measuring the same.

We can simply find out if a triangle is isosceles by measuring the sides of the triangle using a ruler. If two sides have the same measurements, then it is an isosceles triangle.



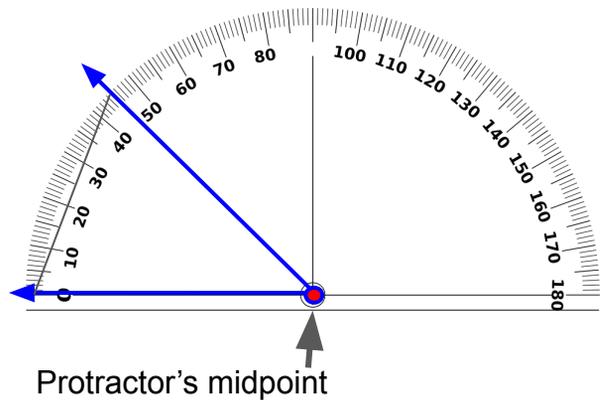
Otherwise, we could also use a **protractor**, which is a tool that we can use to measure angles.

It is usually a flat semicircular form with the angle degrees marked on the curved side.

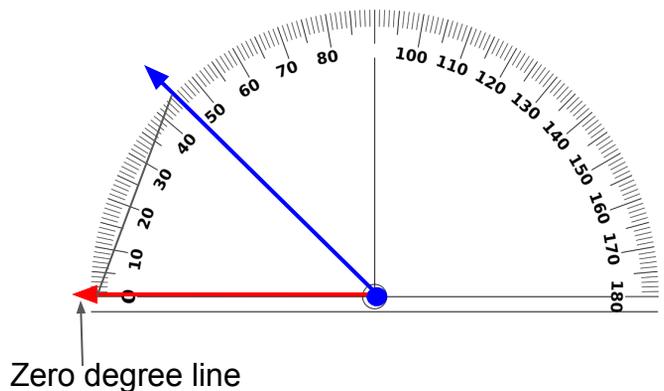


## USING A PROTRACTOR

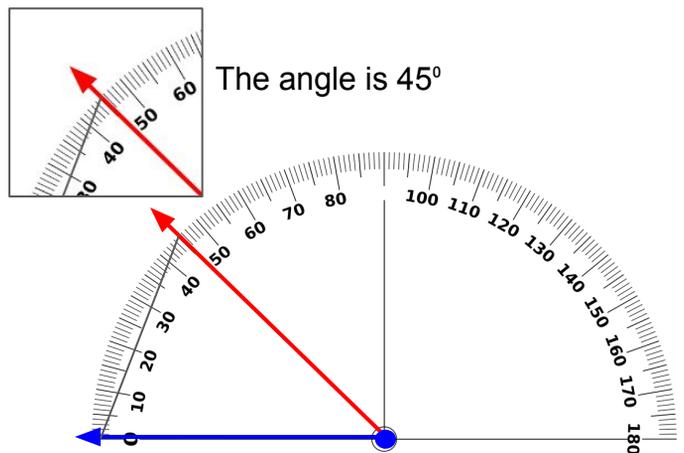
1. Position the protractor so that the vertex of the angle you are measuring is aligned with the protractor's midpoint.



2. Make sure that one side of the angle is lined up with the zero degree line of the protractor



3. Once the angle and protractor are properly positioned, check the other side of the angle that touches the measuring scale and count the degree lines.



### Trivia:

When you add all three angles of a triangle, the **sum is always 180°!**

If you have the measurements of two angles of a triangle, you can already calculate the measurement of the third angle.

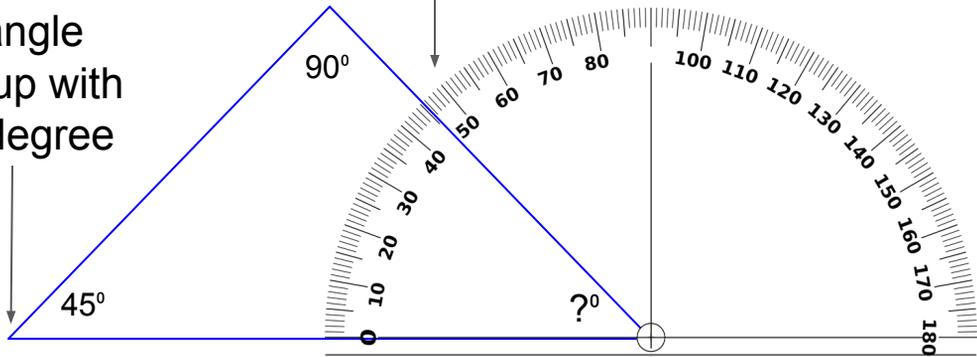
## MEASURING ISOSCELES TRIANGLES

### Example 1:

- c. Check the degree measurement of the other side of the angle.

It measures  $45^\circ$ .

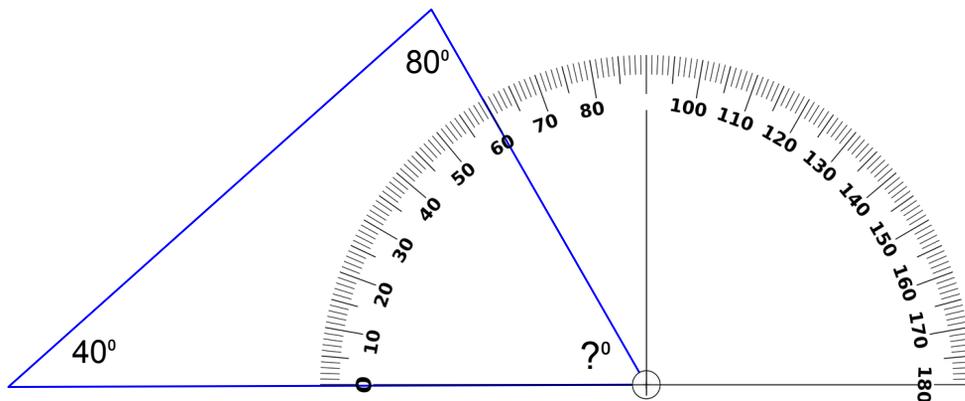
- b. One angle lined up with zero degree line



- a. Angle's vertex aligned with protractor's midpoint

This is a triangle with two angles measuring  $45^\circ$  and one angle measuring  $90^\circ$ . Therefore, this is an isosceles right triangle.

### Example 2:



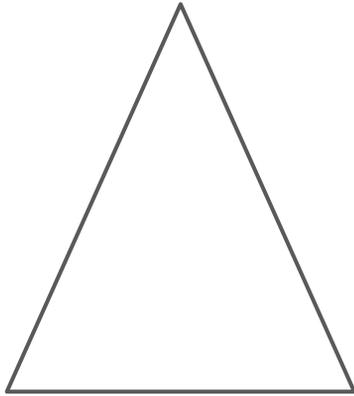
The angle in this triangle measures  $60^\circ$ .  
There are no two angles with the same measurement.  
This is not an isosceles triangle



## MEASURING ISOSCELES TRIANGLES EXERCISES

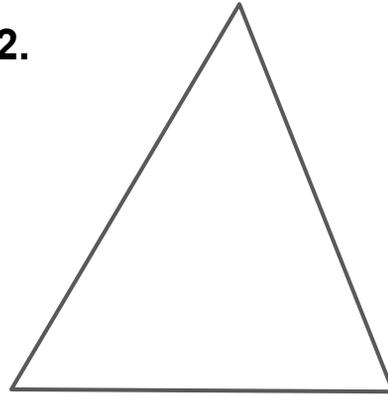
Try measuring the sides and angles of these triangles and note down if these are isosceles triangles or not.

1.



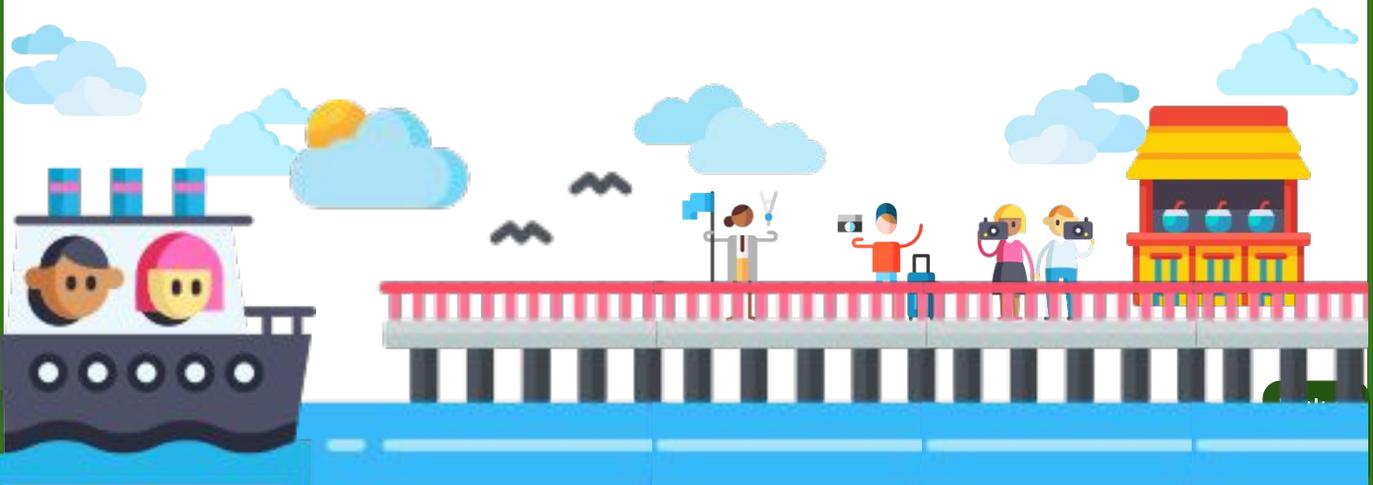
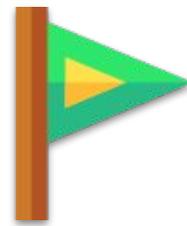
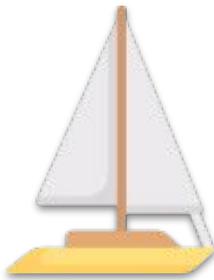
\_\_\_\_\_

2.



\_\_\_\_\_

## ISOSCELES TRIANGLES IN REAL LIFE



# TABLE OF ACTIVITIES

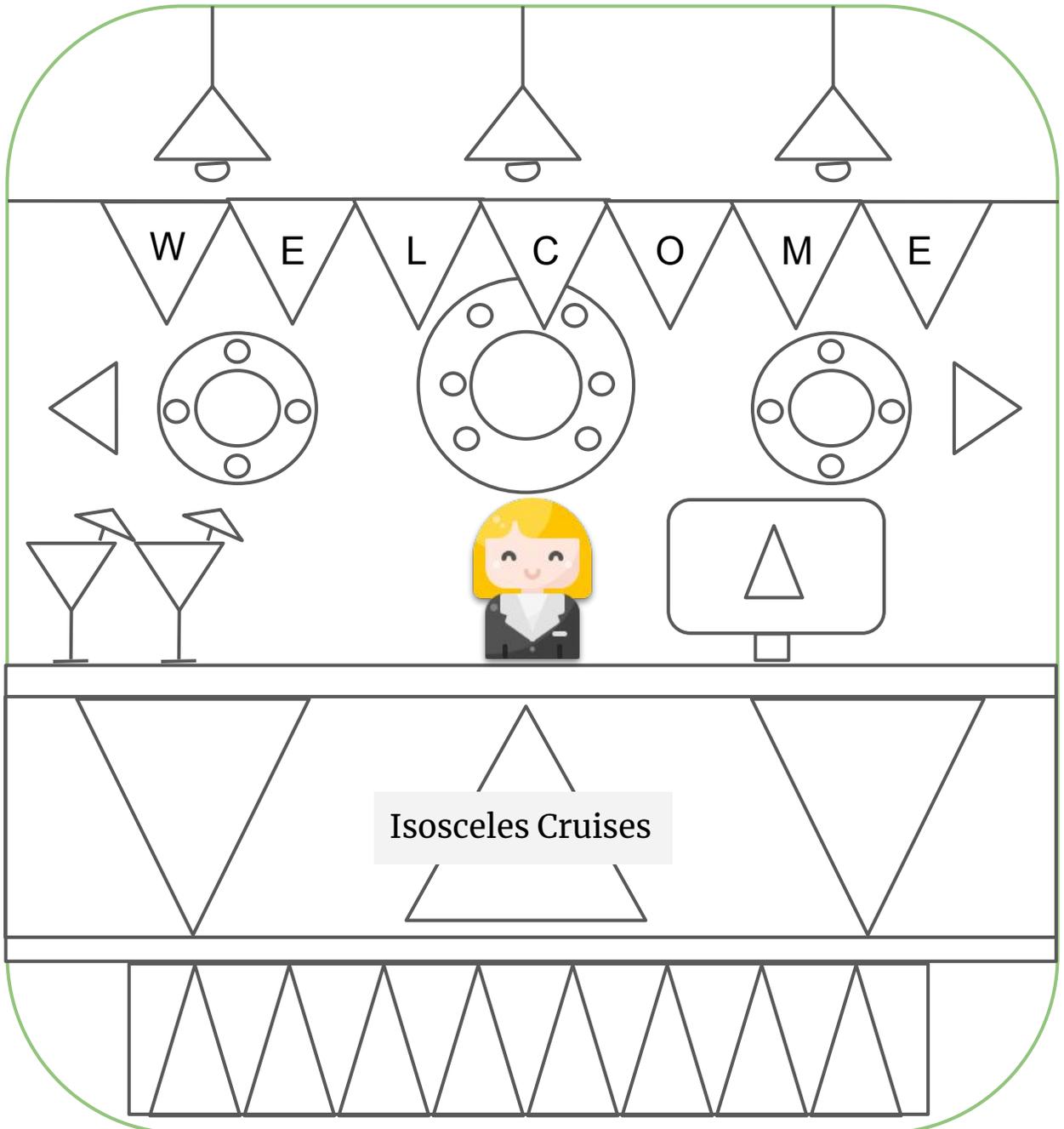
<b>Ages 7-8 (Basic)</b>		<u>3rd Grade</u>
1	Welcome Aboard!	
2	Cabin Check-In	
3	What To Do Today?	
4	Fishing Adventure	
5	World Buffet	
<b>Ages 8-9 (Advanced)</b>		<u>4th Grade</u>
6	Sit Back Salon & Spa	
7	Port of Call	
8	The Cool Pool	
9	Disco Night	
10	Anchors Aweigh	



# WELCOME ABOARD!

G3  
Basic

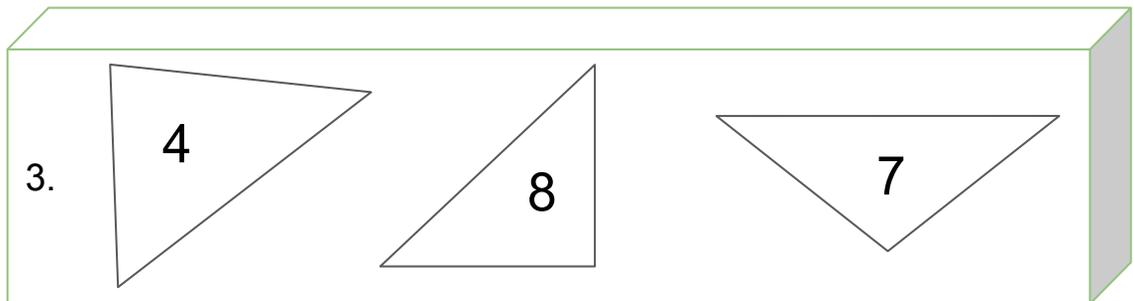
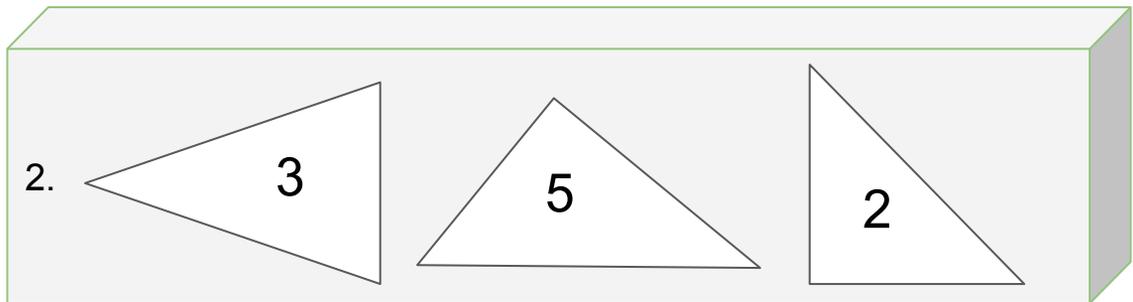
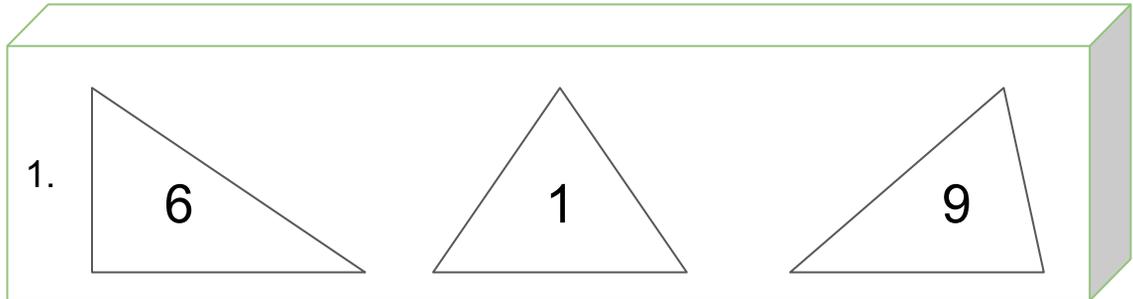
Welcome to Isosceles Cruises! My name is Millie and I will be assisting you during this holiday cruise. Color all isosceles triangles that you can find in the picture below. You may use your ruler or protractor to measure the triangles.



# CABIN CHECK-IN

G3  
Basic

Let us get you checked-in. Shall we? Below are three boxes containing triangles. Each triangle contains a number. Find the isosceles triangles in each box and arrange them in order to find out your room number.



You're room number is:

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

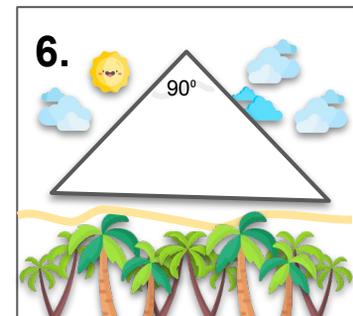
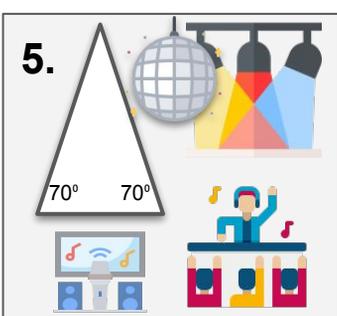
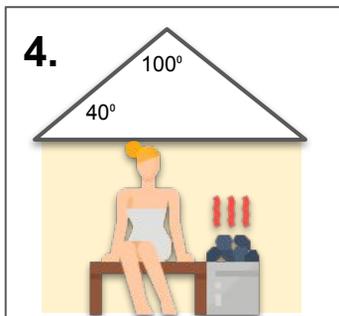
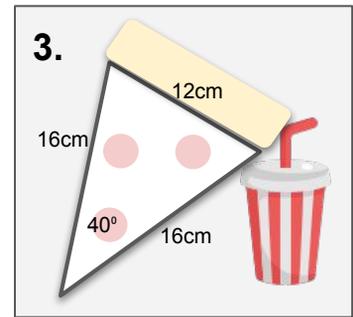
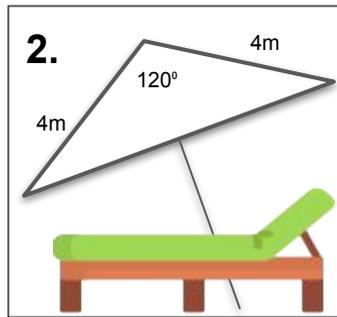
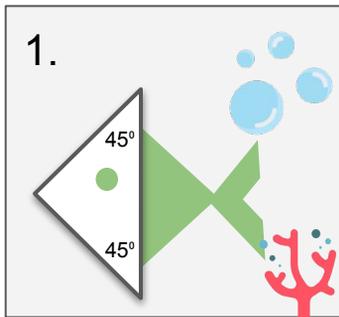


# WHAT TO DO TODAY?

G3  
Basic

Now that you have unpacked your luggage and rested. Let us plan your activities for today. Here is a brochure to help you decide. Write down the type of isosceles triangles on each number. (Acute, Right, or Obtuse)

Isosceles Cruises *CRUISE SHIP ACTIVITIES*



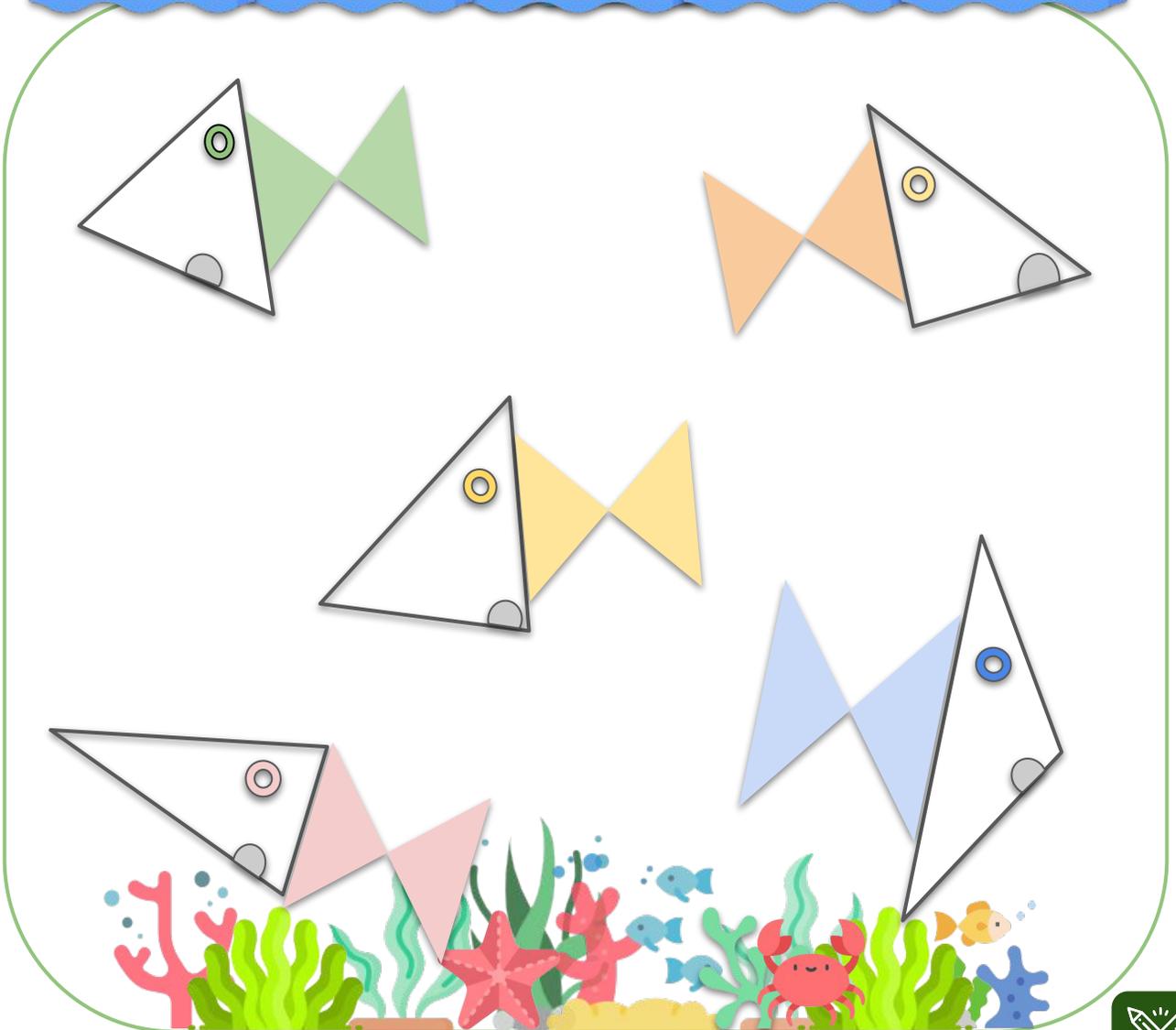
Would you like me to book an appointment for you?



# FISHING ADVENTURE

G3  
Basic

How exciting! You have booked an appointment for the fishing adventure. Catch the fishes by drawing a line connecting the fisherman to the fishes with isosceles triangle shaped heads.



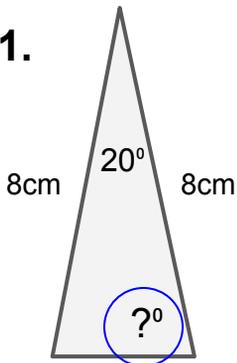
# WORLD BUFFET

G3  
Basic

Hungry? Let me assist you to our food hall with various cuisines from all over the world. I am sure you will find everything that you are looking for. To complete your order, encircle the letter with the missing value of the triangle in each number.

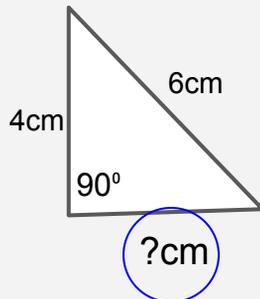


1.



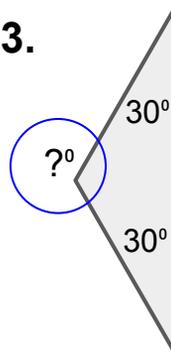
- A.  $60^\circ$
- B.  $70^\circ$
- C.  $80^\circ$
- D.  $90^\circ$

2.



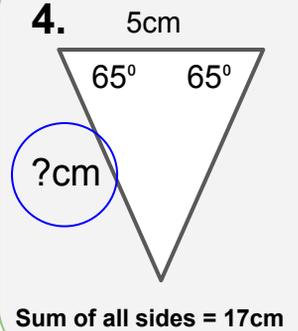
- A. 3cm
- B. 2cm
- C. 5cm
- D. 4cm

3.



- A.  $100^\circ$
- B.  $120^\circ$
- C.  $180^\circ$
- D.  $150^\circ$

4.



- A. 6cm
- B. 10cm
- C. 4cm
- D. 5cm



Enjoy your meal!



Before we continue with your other activities, why not relax for a minute and enjoy the cruise ship's salon and spa? Get a new haircut, a massage, and try out the sauna. Write down the correct answer for each question below.

1. How many sides of an isosceles triangle has equal measurements?

Answer:

---



2. If the base angles of the triangle is measuring both  $45^\circ$ , what kind of isosceles triangle is it?

Answer:

---

3. What do you call the angle made by the two equal sides of an isosceles triangle?

Answer:

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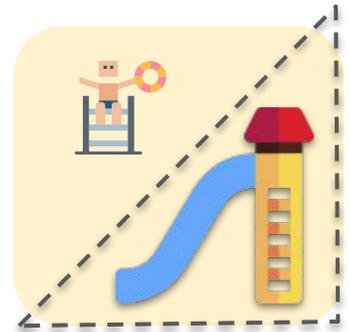
# THE COOL POOL

G4  
Advanced

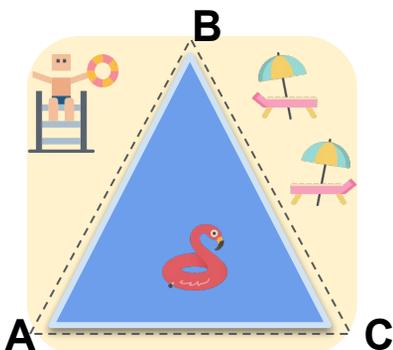
Explore the pool deck area. There are lots of water slides and water activities to do there. Why don't you have a look around and lie down by the pool? Answer the following questions below. Show your solutions and explain your answer.

1. Whoa. This super slide is really high. The lifeguard said that the slide is shaped like an isosceles right triangle. The length of the ladder is 10 meters high. The vertex angle formed between the ladder and the ground is  $90^\circ$ . The total sum of all sides of the triangle is 40m. How long is the super slide?

Solution/Explanation:



2. Isosceles Cruises has a state of the art isosceles triangle pool. The lifeguard explained that Point A and Point C are both  $50^\circ$ . The length from Point A to Point C is 10 meters while the total sum of all sides is 110 meters. How far is the distance from Point A to Point B of this triangle pool?



Solution/Explanation:



# PORT OF CALL

G4  
Advanced

We are now approaching the first stopover of this cruise. It is a small tropical town called Iso-Iso Island. Prepare your travel checklist so you won't miss any sights and activities. Under Column A, encircle the letter with the measurements of an isosceles triangle. Note down the type of isosceles triangle, under Column B.

	Column A	Column B
1	a. $35^\circ, 110^\circ, 35^\circ$ b. $28^\circ, 32^\circ, 120^\circ$	
2	a. $91^\circ, 36^\circ, 53^\circ$ b. $44^\circ, 92^\circ, 44^\circ$	
3	a. $90^\circ, 45^\circ, 45^\circ$ b. $120^\circ, 20^\circ, 40^\circ$	
4	a. $53^\circ, 74^\circ, 53^\circ$ b. $95^\circ, 12^\circ, 73^\circ$	
5	a. $56^\circ, 62^\circ, 62^\circ$ b. $61^\circ, 59^\circ, 60^\circ$	
6	a. $10^\circ, 70^\circ, 100^\circ$ b. $40^\circ, 100^\circ, 40^\circ$	
7	a. $30^\circ, 120^\circ, 30^\circ$ b. $55^\circ, 45^\circ, 80^\circ$	
8	a. $45^\circ, 90^\circ, 45^\circ$ b. $94^\circ, 42^\circ, 44^\circ$	

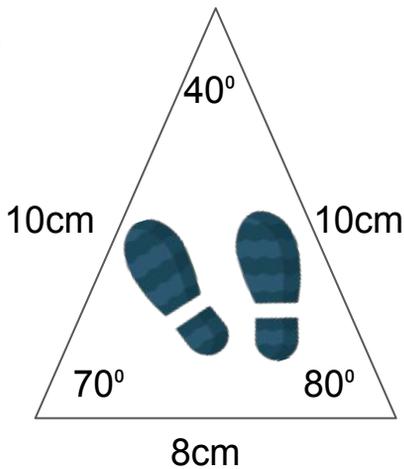


# DISCO NIGHT

G4  
Advanced

Get down and boogy! Tonight's activity is a 70's themed dance party. Dance to the groove. Encircle the wrong value of the isosceles triangle for each number and show the solution to the correct value. Also, note down the type of isosceles triangle.

1.

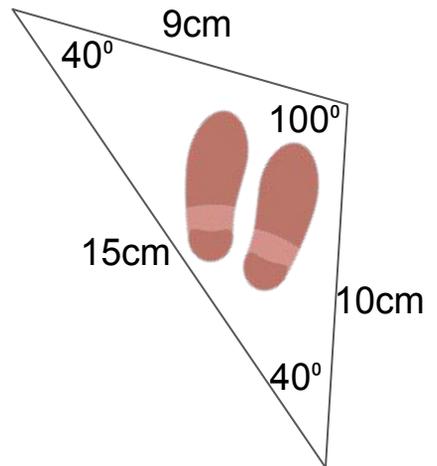


Correct Value:

Which type of isosceles triangle?

Explanation/Solution:

2.



Correct Value:

Which type of isosceles triangle?

Explanation/Solution:



# ANCHORS AWEIGH

G4  
Advanced

We are leaving the Iso-Iso Island port soon. Grab a postcard at the souvenir store and send it off to your family and friends to let them know you were there and how you are doing. Draw them a picture of all the colorful sights and activities you have experienced. Make sure to include all the types of isosceles triangles that we learned.

POSTCARD



To:

---

---

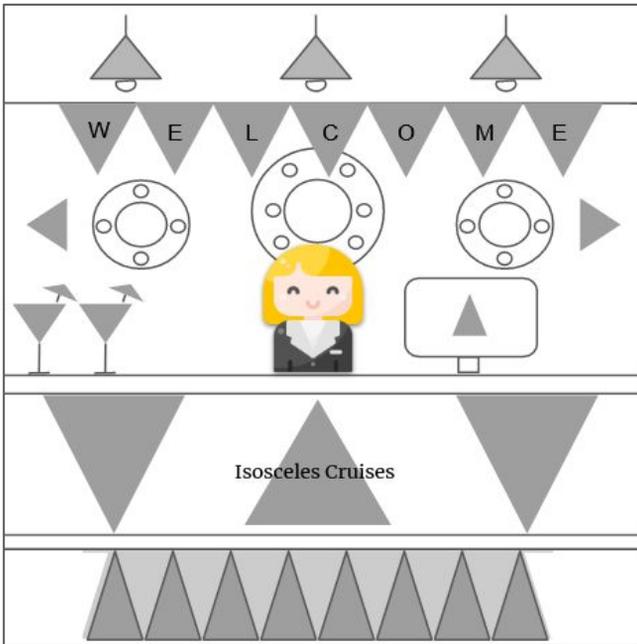


*Iso-Iso Island Adventures*



# ANSWER GUIDE

## Activity 1



## Activity 3

1. Right
2. Obtuse
3. Acute
4. Obtuse
5. Acute
6. Right

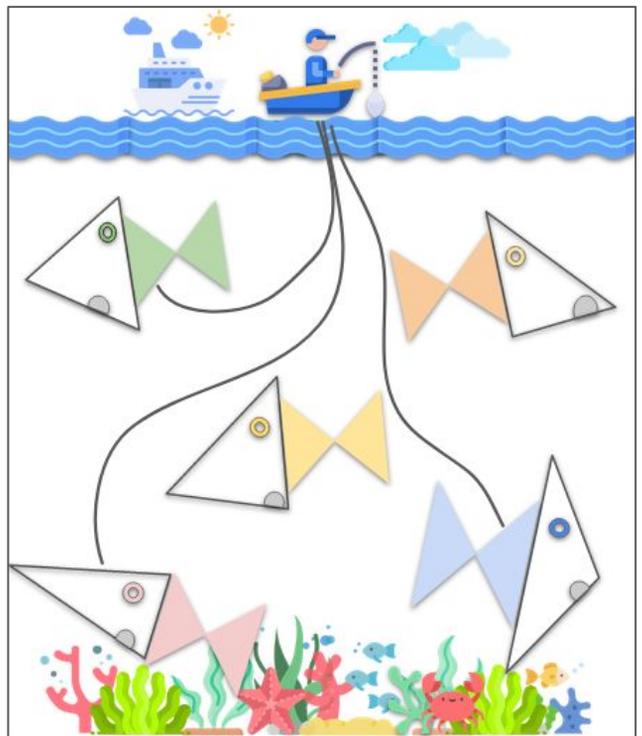
## Activity 5

1. C
2. D
3. B
4. A

## Activity 2

1. 1
2. 3 Room number: 137
3. 7

## Activity 4



## Activity 6

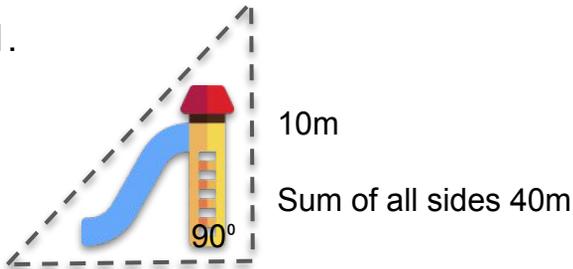
1. Two sides
2. Isosceles right triangle
3. Vertex angle



# ANSWER GUIDE

## Activity 7

1.



Solution/Explanation:

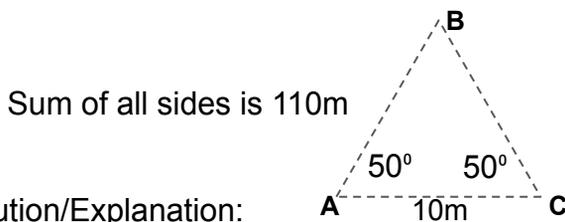
The sides forming the  $90^\circ$  angle are the isosceles' legs and should be congruent to each other. We are looking for the measurement of the slide, which is the triangle's base.

Therefore, both sides/legs should measure  $10\text{m}$ .

- Sum of legs:  $10\text{m} + 10\text{m} = 20\text{m}$
- Sum of all sides - Sum of legs:  
 $40\text{m} - 20\text{m} = 20\text{m}$

**Therefore, the slide is  $20\text{m}$  long.**

2.



Solution/Explanation:

Point A to C have the same angle measurement of  $50^\circ$ . Therefore, these are the base angles of the triangle. Point A to C is the triangle base's measurement. We are looking for the measurement of Point A to B, which is a leg of the triangle.

Sum of all sides - Measurement of base:  
 $110\text{m} - 10\text{m} = 100\text{m}$

$100\text{m}$  divided by 2 legs =  $50\text{m}$

**Therefore, Point A to Point B measures  $50\text{m}$ .**

## Activity 8

	Column A	Column B
1	A	Isosceles Obtuse
2	B	Isosceles Obtuse
3	A	Isosceles Right
4	A	Isosceles Acute
5	A	Isosceles Acute
6	B	Isosceles Obtuse
7	A	Isosceles Obtuse
8	A	Isosceles Right



# ANSWER GUIDE

## Activity 9

1. Wrong value is  $80^\circ$   
Correct Value is  $70^\circ$

### Which type of isosceles triangle?

This is an Isosceles Acute Triangle

### Explanation/Solution:

The sum of all angles should be  $180^\circ$ . Two sides with equal measurements are 10cm.

The  $80^\circ$  is wrong as it should be the same with the base angle  $70^\circ$ .

It should be:

$$40^\circ + 70^\circ + 70^\circ = 180^\circ$$

2. Wrong value is 9cm  
Correct value is 10cm

### Which type of isosceles triangle?

This is an Isosceles Obtuse Triangle

### Explanation/Solution:

15cm is the base of the triangle.

10cm is then the leg of the triangle. The side congruent to this leg should have the same measurement.

## Activity 10

Answers may vary.



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