3rd Basic

4th Advanced

Helping With Math

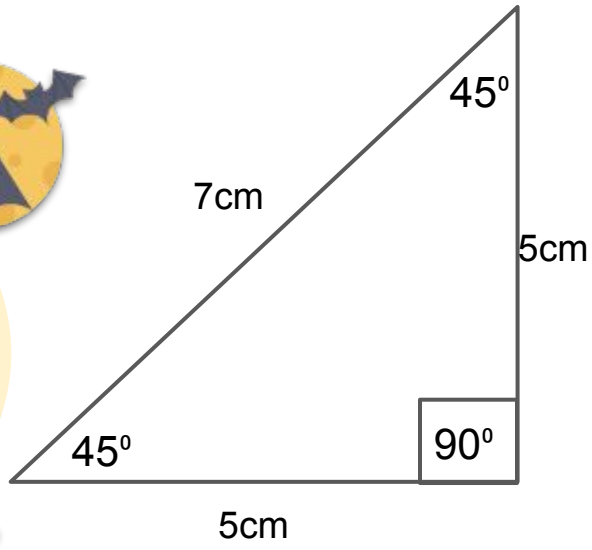
USA GRADES

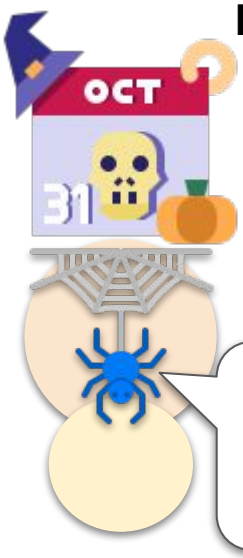
Right Triangles

Suitable for students **aged 7-9**

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

A **right triangle** is a triangle that contains one 90^0 angle.



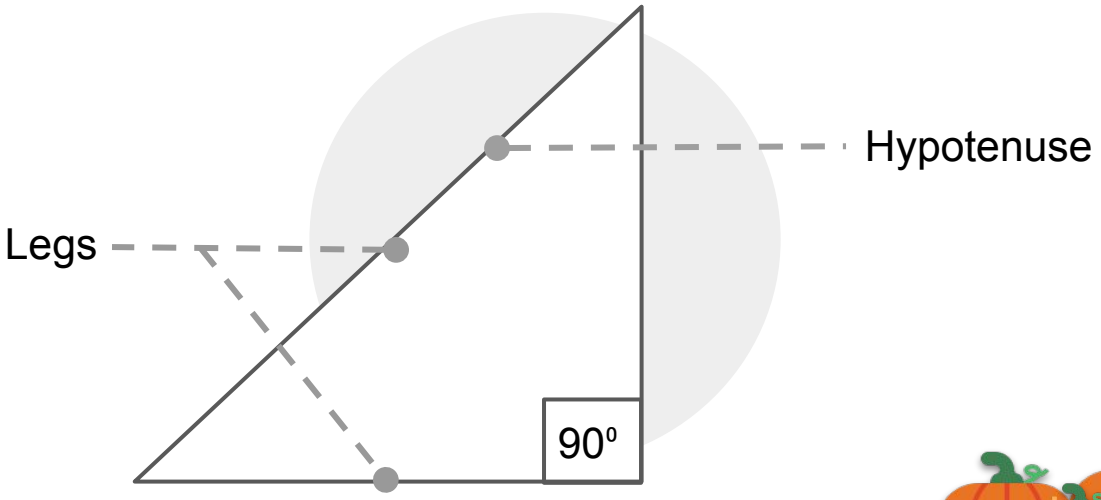


Parts of a right-angled triangle:

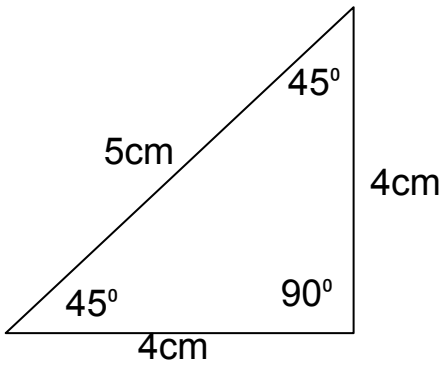
- Hypotenuse - the side opposite the right angle. Also, it is the longest side of a right triangle.
- Legs - These are the sides adjacent to the right angle.

Trivia: The total sum of angles of a triangle is always 180^0. Since a right triangle contains a 90^0 angle, the other two angles will always add up to 90^0.

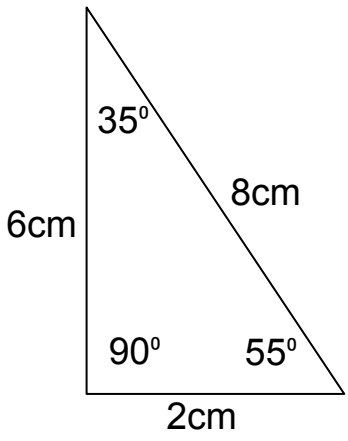
PARTS OF A RIGHT TRIANGLE



TYPES OF RIGHT TRIANGLES



Isosceles Right Triangle



Scalene Right Triangle

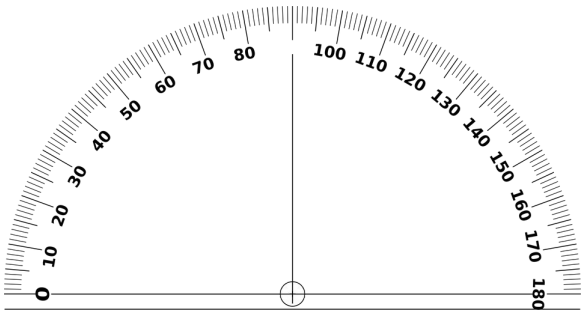
Isosceles Right Triangle: A right triangle with two equal sides. The angles are always measured 45^0-45^0-90^0.

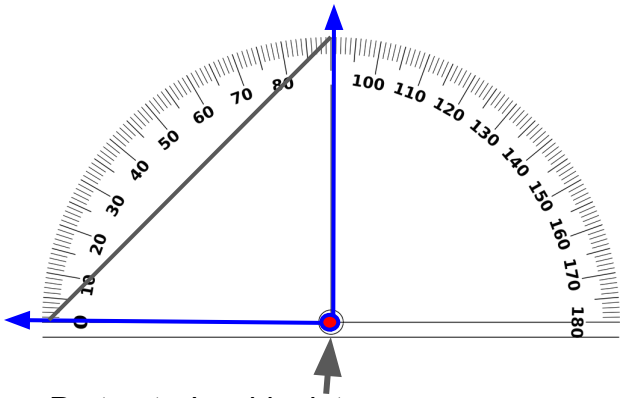
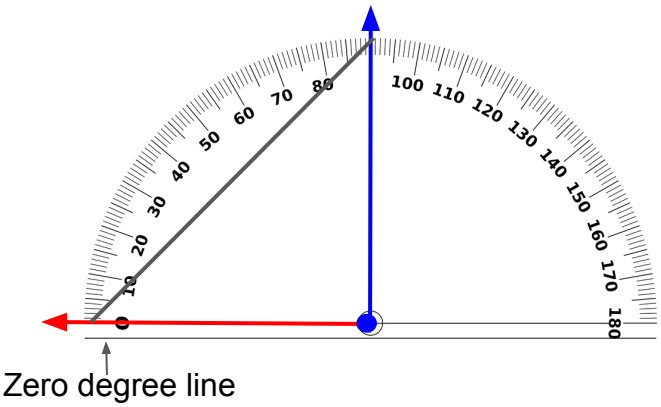
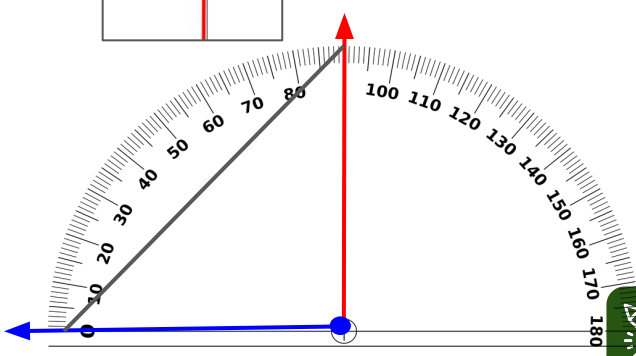
Scalene Right Triangle: A right triangle with no equal sides and no equal angles.

MEASURING RIGHT TRIANGLES

A **protractor** 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.



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.	 The angle is 90^0 

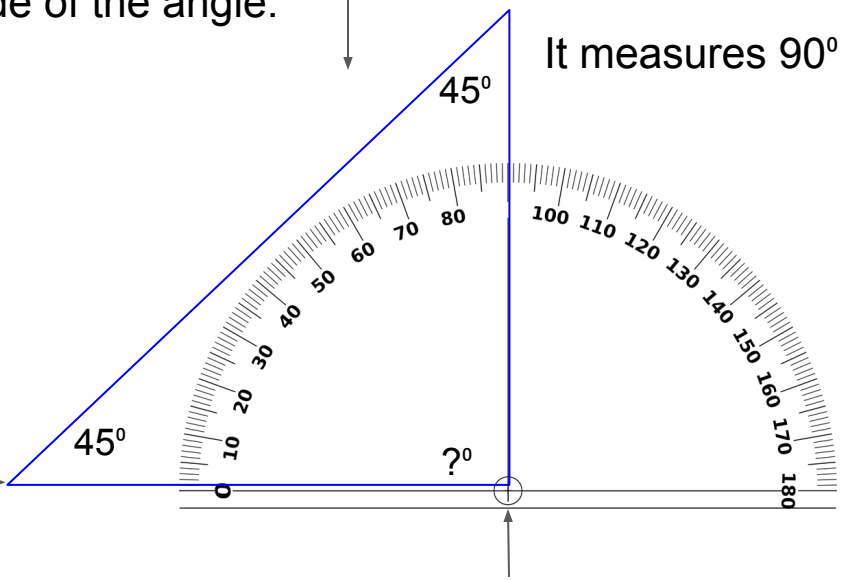
MEASURING RIGHT TRIANGLES

Example 1:

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

It measures 90^0.

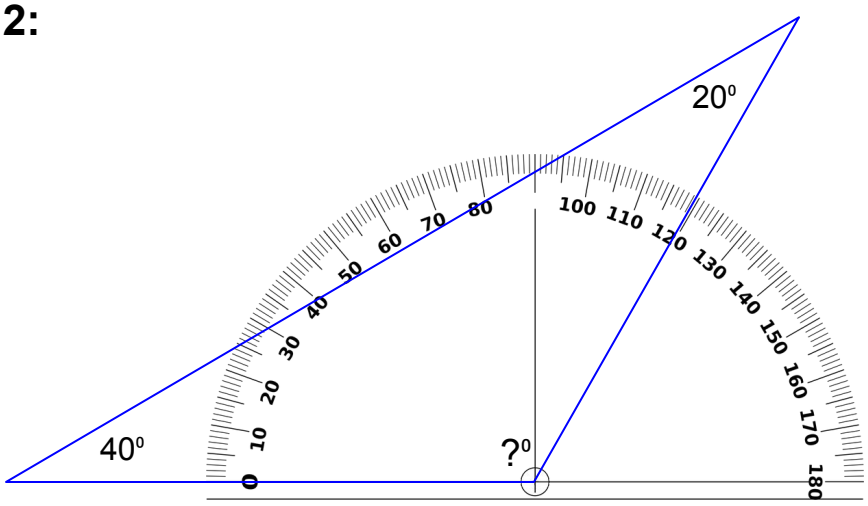
b. One angle lined up with zero degree line



a. Angle vertex aligned with protractor's midpoint

This is a triangle with an angle measuring 90^0.
Therefore, this is an right triangle.

Example 2:

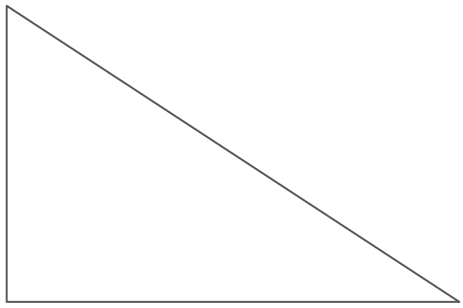


The angle in this triangle measures 120^0.
There are no other triangles measuring 90^0.
Therefore, this is not a right triangle.

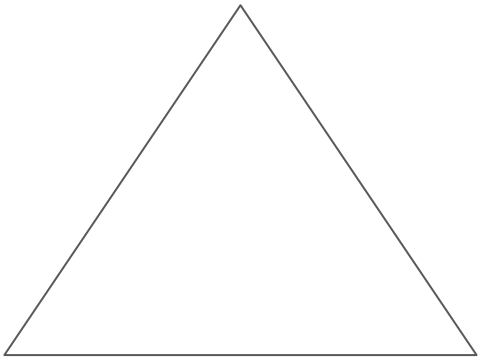
MEASURING RIGHT TRIANGLES EXERCISES

Try measuring the degrees of these triangles and note down if these are right triangles or not.

1.



2.



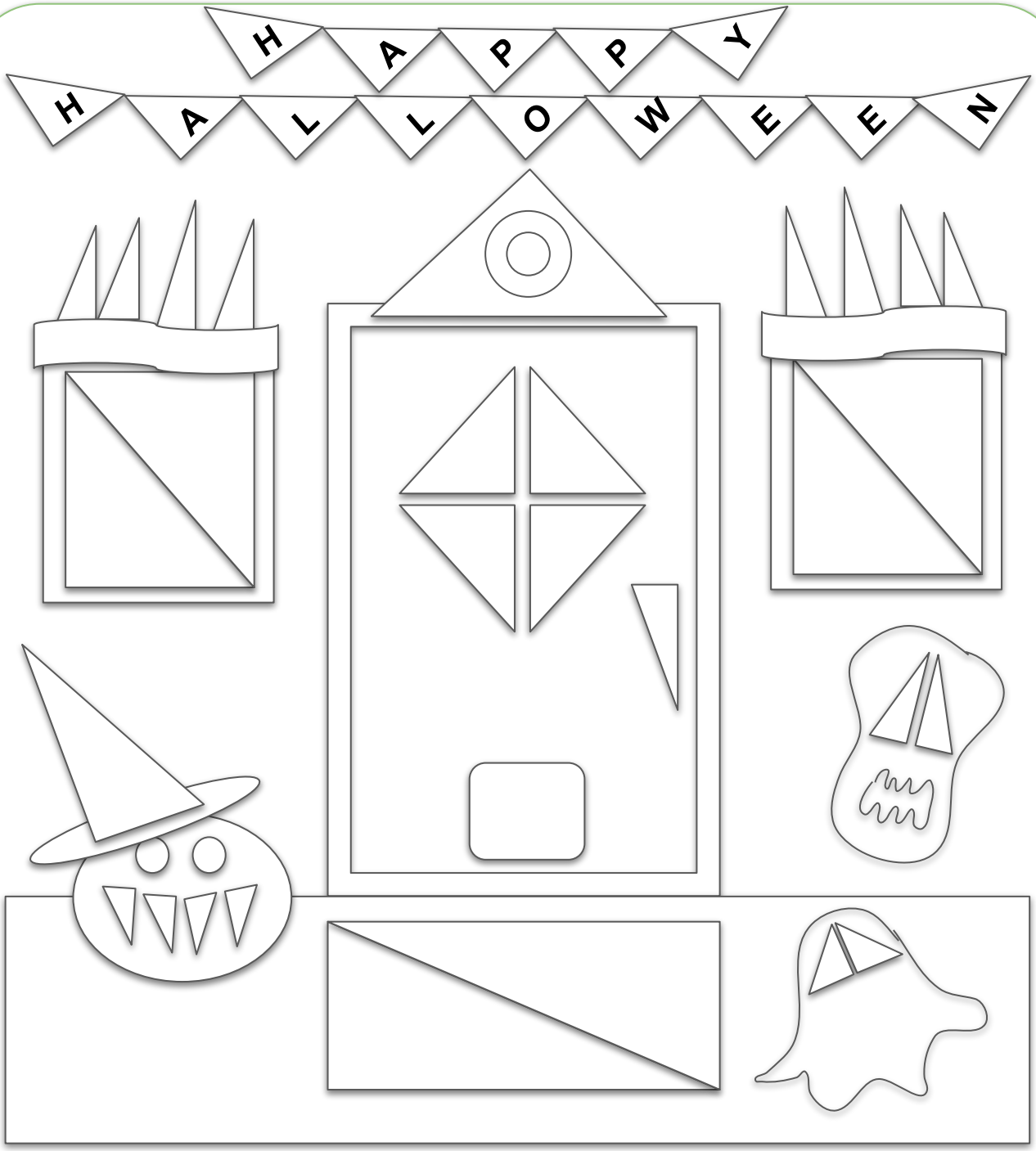
RIGHT TRIANGLES IN REAL-LIFE

TABLE OF ACTIVITIES

OCTOBER 31

G3
Basic

Oct 31. Boo! It's Halloween or All Hallow's Eve. Get ready with the decorations, candies, and costumes! Let us celebrate by coloring the right triangles in the below picture. You may use a protractor to measure the angles.



OF GHOSTS, GHOULS , & WITCHES

G3
Basic

Did you know that the tradition of wearing scary costumes during Halloween was originally meant to protect people by confusing evil spirits? It stemmed from a Celtic tradition going centuries back. Let us do some scaring of our own by encircling each question below.

1. What is the longest side of a right triangle called?

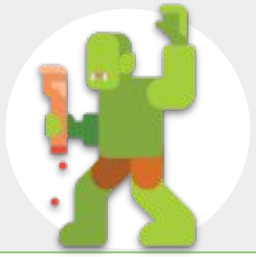
a. Hypothermia

b. Hypotenuse

c. Hypotenant

d. Hypothesis

2. What are the angle measurements of an isosceles right triangle?



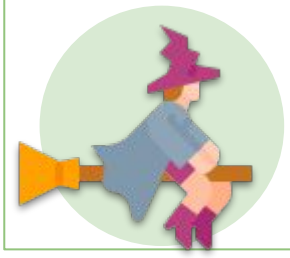
a. 30^0 - 60^0 - 90^0

b. 90^0 - 35^0 - 55^0

c. 10^0 - 80^0 - 90^0

d. 90^0 - 45^0 - 45^0

3. In a right triangle, which type of angles are the two other non-right triangles?



a. Equilateral Angles

b. Obtuse Angles

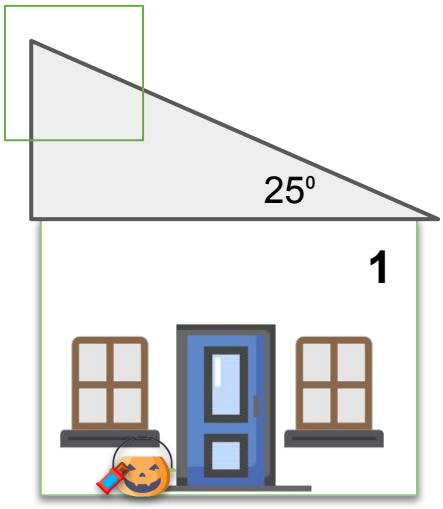
c. Acute Angles

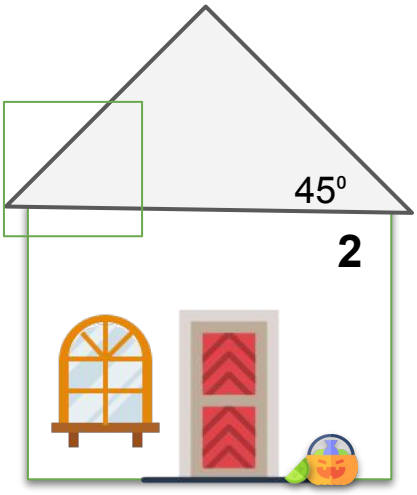
d. Scalene Angles

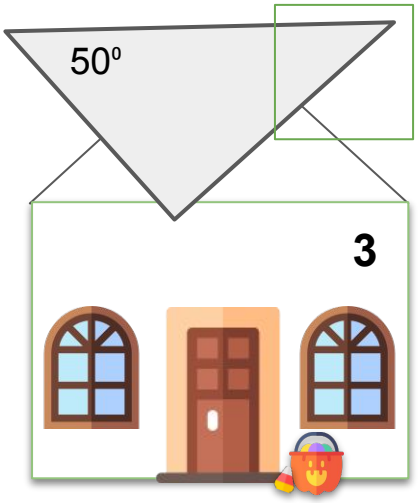
TRICK OR TREAT

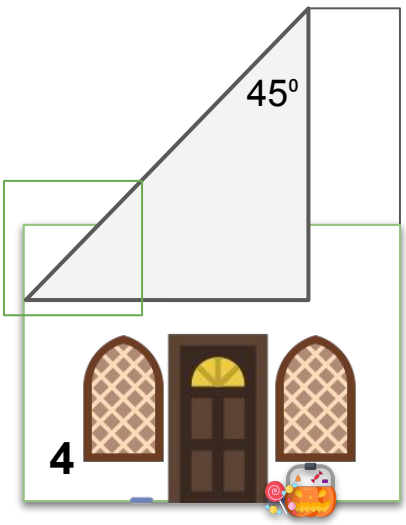
G3 Basic

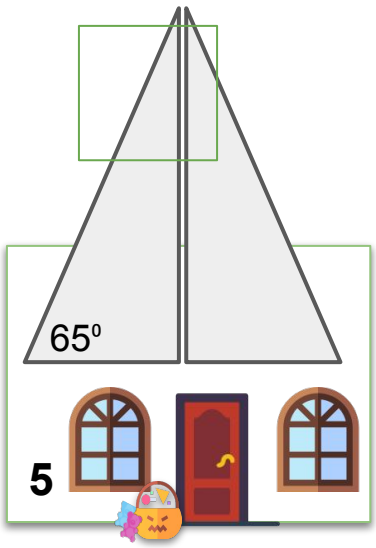
The tradition of trick or treat was a way to share the Halloween celebration to the whole community. Let us do some trick or treating ourselves and visit some houses. Note down the missing angle values highlighted in each triangle below. At the bottom of every house, note down the type of right triangle.

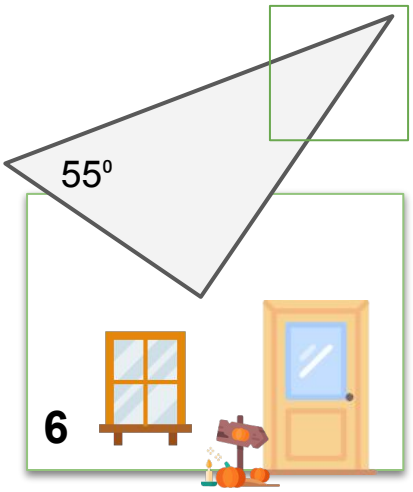










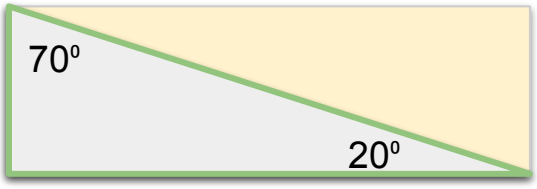


CANDY BASKET

G3 Basic

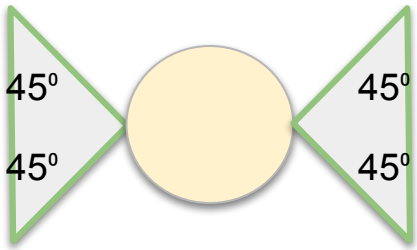
We collected a lot of chocolates and candies! Let us look at what we received from trick or treating. Check yes or no, if the candies are right triangles or not.

1.



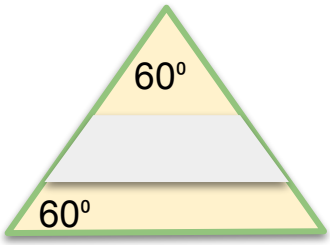
❑ Yes
❑ No

2.



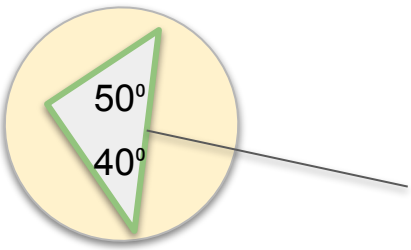
❑ Yes
❑ No

3.



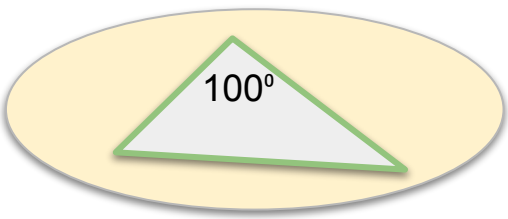
❑ Yes
❑ No

4.

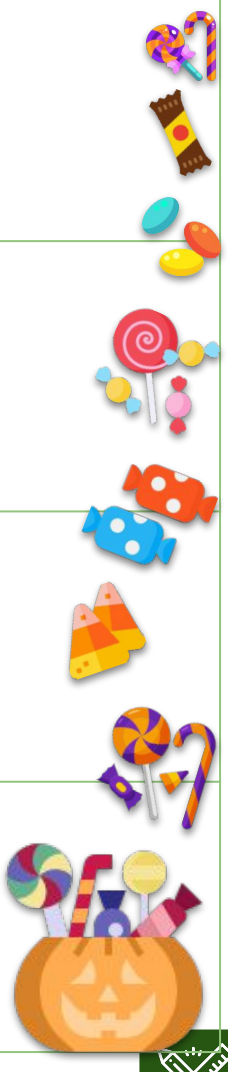


❑ Yes
❑ No

5.



❑ Yes
❑ No



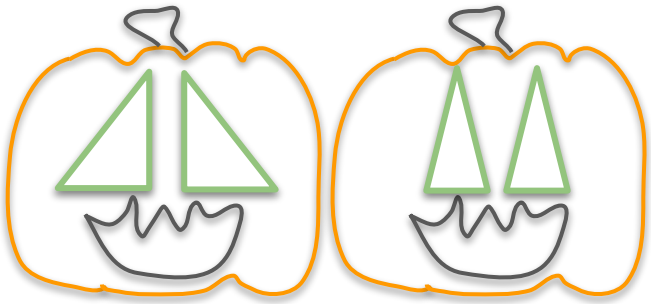
PUMPKIN HEADS

G3
Basic

Carving pumpkins was meant to drive away Stingy Jack. A man, who tricked the devil and now wanders around during Halloween. Jack O'Lanterns help to scare away Stingy Jack and the evil spirits. Help scare them away. Encircle the letter for each number of the Jack O'Lanterns containing right triangle angle measurements.

1.

A. 50^0
40^0
90^0



B. 75^0
30^0
75^0

2.

A. 25^0
130^0
25^0

B. 70^0
90^0
20^0

3.

A. 35^0
55^0
90^0

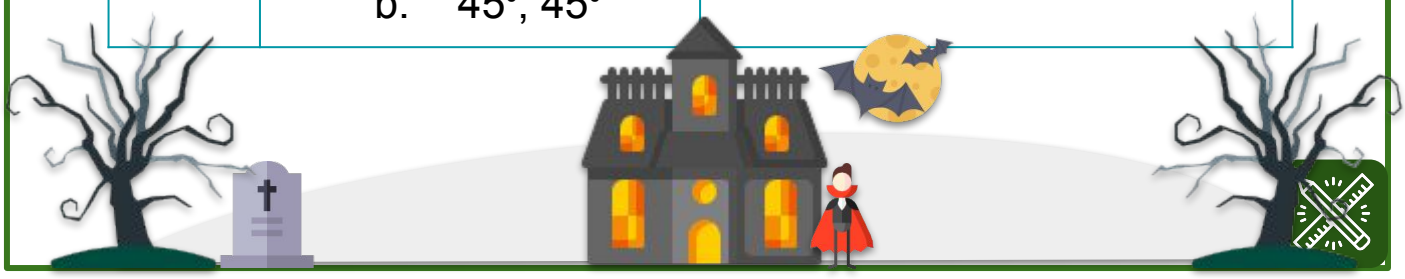
B. 30^0
80^0
80^0

HOUSE OF HORRORS

G4 Advanced

What is Halloween without a spooky house? Let us take a walk inside the House of Horrors. Under Column A, encircle the angle measurements that belong to a right triangle. Under Column B, note down the type of right triangle.

	Column A	Column B
1	a. 42^0, 48^0 b. 35^0, 32^0	
2	a. 34^0, 46^0 b. 25^0, 65^0	
3	a. 32^0, 57^0 b. 45^0, 90^0	
4	a. 56^0, 52^0 b. 43^0, 47^0	
5	a. 33^0, 80^0 b. 22^0, 68^0	
6	a. 51^0, 66^0 b. 45^0, 45^0	

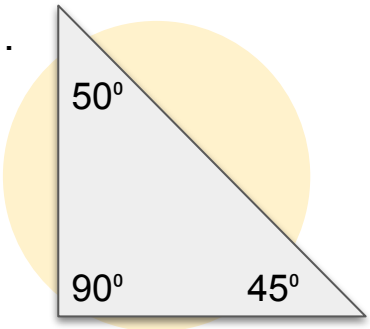


HALLOWEEN PARTY

G4 Advanced

Aren't Halloween parties cool? The costumes and Halloween themed food? Encircle the wrong angle measurement value in the below right triangles. You may use your protractor to measure the angles. Supply the correct value, solution, and type of right triangle.

1.

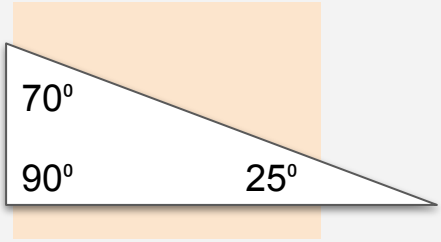


Correct Value:

Solution:

Type of Right Triangle:

2.

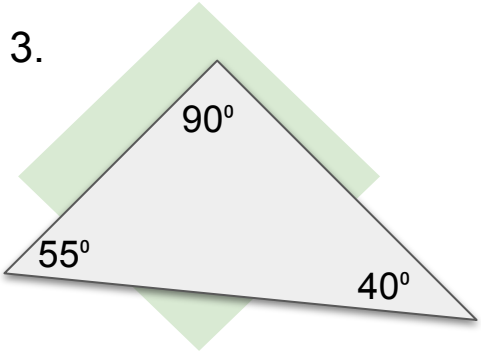


Correct Value:

Solution:

Type of Right Triangle:

3.



Correct Value:

Solution:

Type of Right Triangle:

SCARY MOVIES

G4 Advanced

What about watching some scary movies? Halloween would be the perfect time to do this. Choose the movies to watch by encircling the letter of the correct answer.

1. In Suburban St., the people talk about the triangle house on a hill that has been abandoned for years. It is shaped as a right triangle. Its house number is based on the unknown angle of the house. The only known angle is 37^0. One day, this house lights up and neighbors hear strange noises. What is the address of this house?

   a. 60 Suburban St.
   c. 53 Suburban St.
   b. 180 Suburban St.
   d. 63 Suburban St.

   Solution:

2. There is a floating ghost ship that sails around the Spirit Triangle. The Spirit Triangle is said to be an area in the sea, which has a strong pull of gravity that sinks ships. It is said to be a right triangle with one angle measuring 30^0. The unknown angle is said to be the number of souls stuck in this ghost ship. How many ghost passengers are in this ghost ship?

   a. 90 ghosts
   c. 80 ghosts
   b. 100 ghosts
   d. 60 ghosts

   Solution:

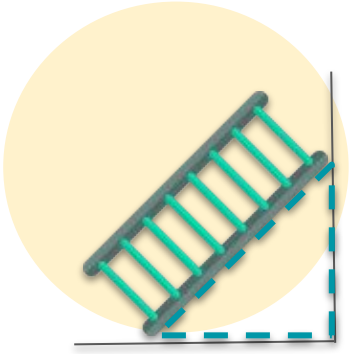
SUPERSTITIOUS SIGHTINGS

G4 Advanced

Ever heard of spooky superstitions that people believe bring bad luck to you? Help others avoid these superstitions. Answer the below questions.

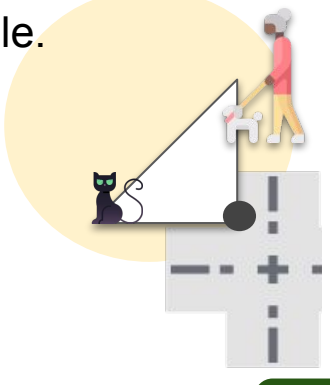
1. All the houses are busy decorating for Halloween. You see a man climbing up a ladder adding decorations on their roof. Stop! If you pass through underneath the ladder, that will bring you bad luck. Let us help the neighbor properly angle their ladder. We only know that the top angle should be set to 65^0 and that when setting the ladder to the wall it forms a right triangle. Compute the complete angle measurements.

Solution:



2. You are crossing the street and see a black cat and a woman walking her dog from afar. You are at a 90^0 angle. The cat seems to be at 50^0 angle facing the woman. Based on where the woman is standing you are forming a right triangle. Help the woman and her dog move paths by calculating her current angle.

Solution:



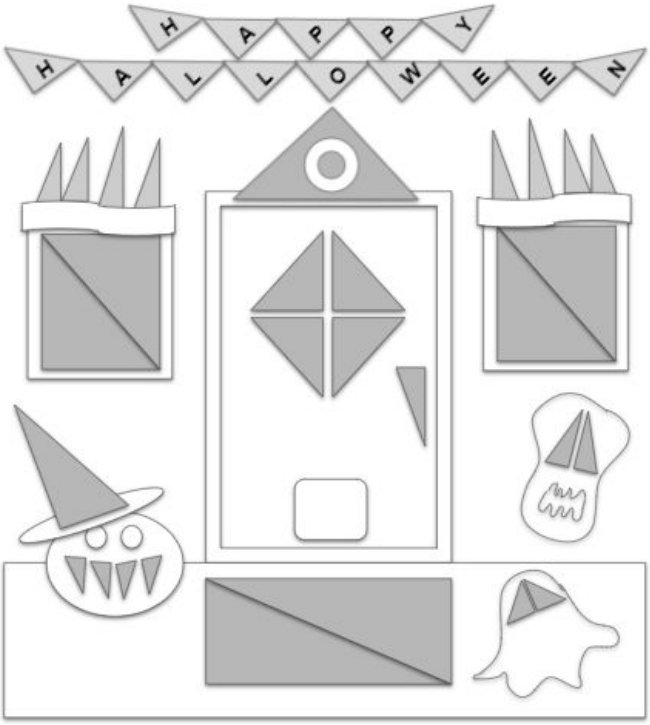
HAUNTED HOUSE

G4
Advanced

Create your own Haunted House. Use right triangles in your drawings and make sure to measure your angles. Be as creative and spooky as you can!

ANSWER GUIDE

Activity 1



Activity 2

1. B
2. D
3. C

Activity 3

1. 65^0 - Scalene Right Triangle
2. 45^0 - Isosceles Right Triangle
3. 40^0 - Scalene Right Triangle
4. 45^0 - Isosceles Right Triangle
5. 25^0 - Scalene Right Triangle
6. 35^0 - Scalene Right Triangle

Activity 4

1. Yes
2. Yes
3. No
4. Yes
5. No

Activity 5

1. A
2. B
3. A

Activity 6

1. A - Scalene Right Triangle
2. B - Scalene Right Triangle
3. B - Isosceles Right Triangle
4. B - Scalene Right Triangle
5. B - Scalene Right Triangle
6. B - Isosceles Right Triangle

Activity 7

1. Incorrect Value: 50^0
   Correct Value: 45^0
   Solution:
   Sum of correct angles: $90^0 + 45^0 = 135^0$
   $180^0 - 135^0 = 45^0$

   Type of right triangle:
   Isosceles Right Triangle

2. Incorrect Value: 25^0
   Correct Value: 20^0
   Solution:
   Sum of correct angles: $90^0 + 70^0 = 160^0$
   $180^0 - 160^0 = 20^0$

   Type of right triangle:
   Scalene Right Triangle

3. Incorrect Value: 55^0
   Correct Value: 50^0
   Solution:
   Sum of correct angles: $90^0 + 40^0 = 130^0$
   $180^0 - 130^0 = 50^0$

   Type of right triangle:
   Scalene Right Triangle

ANSWER GUIDE

Activity 8

1. C. 53 Suburban St.

   Solution:
   A right triangle has a 90^0 angle and the other known angle is 37^0 .

   $90^0 + 37^0 = 127^0$ | $180^0 - 127^0 = 53^0$

2. D. 60 ghosts

   Solution:
   A right triangle has a 90^0 angle and the other know angle is 30^0 .

   $90^0 + 30^0 = 120^0$ | $180^0 - 120^0 = 60^0$

Activity 9

1. Solution:
   A right triangle has 90^0 angle.
   The other known angle is 65^0.

   $90^0 + 65^0 = 155^0$
   $180^0 - 155^0 = 25^0$

   The complete angle measurements are.

   $90^0 - 65^0 - 25^0$

2. Solution:
   You are at 90^0 angle.
   The cat is at a 50^0.

   $90^0 + 50^0 = 140^0$
   $180^0 - 140^0 = 40^0$

   The woman's angle is 40^0.

Activity 10

Answers may vary.

Copyright Notice

Thank you

Thank you so much for purchasing and downloading this resource.

We hope it has been useful for you in the classroom and that your students enjoy the activities.

For more teaching and homeschooling resources like this, don't forget to come back and download the new material we add every week!

Thanks for supporting **Helping With Math**. We can provide teachers with low-cost, high-quality teaching and homeschooling resources because of our loyal subscribers and hope to serve you for many years to come.

- The Entire Helping With Math Team :)