5th Basic

6th Advanced

Helping With Math

USA GRADES

Triangles

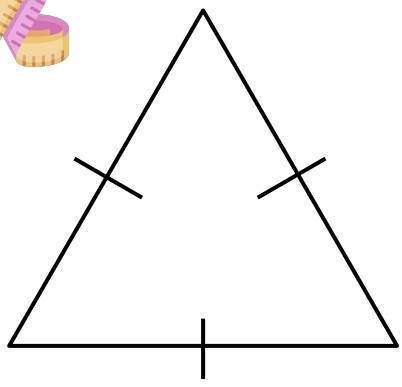
Suitable for students **aged 9-11**

This pack is suitable for learners aged 9-11 years old or 5th and 6th graders (USA). The content covers fact files and relevant basic and advanced activities involving triangles.

- A triangle is described as a three-sided polygon which closes in a space.
- To form the three sides, it uses lines, line segments or rays.
- A triangle has three sides, three angles and three vertices.
- There are different types of triangles depending on its sides .
- The types of triangles based on its side are called: *equilateral, isosceles, and scalene triangles*.

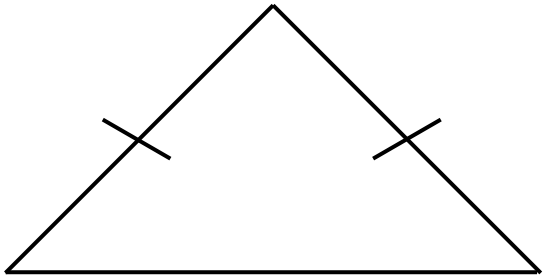
TYPES OF TRIANGLES

BASED ON ITS SIDES



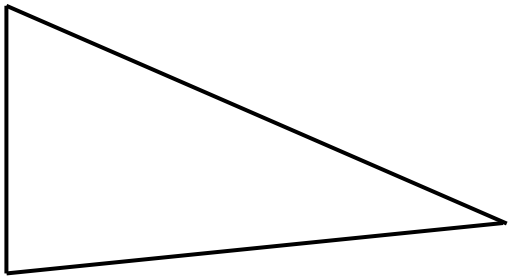
EQUILATERAL

Triangle with all three sides having the same lengths.



ISOSCELES

Triangle with two sides having the same lengths.



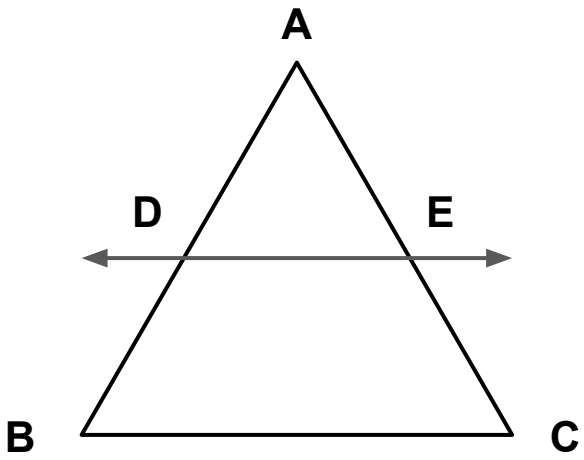
SCALENE

Triangle with all sides not having the same lengths.

THEOREM OF TRIANGLES

Basic Proportionality Theorem (BPT)

If a line is parallel to a side of a triangle which intersects other two sides in distinct points, then the line divides other two sides in proportion.



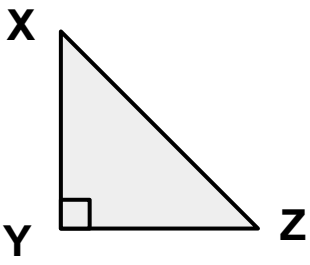
If DE | | BC, then by BPT

$$\frac{AD}{DB} = \frac{AE}{EC}$$

DID YOU KNOW?

Pythagorean Theorem

If a line is parallel to a side of a triangle which intersects other two sides in distinct points, then the line divides other two sides in proportion.

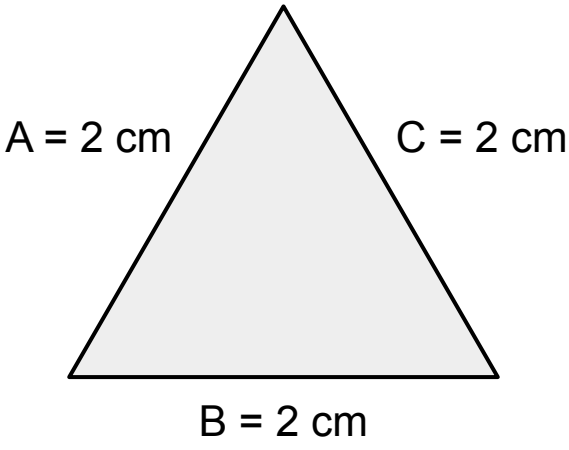


$$XZ^2 = XY^2 + YZ^2$$

PERIMETER OF TRIANGLE

The perimeter of a triangle is the total distance covered by a triangle which can be calculated by adding all the sides of the triangle.

$$P = a + b + c$$



$$P = a + b + c$$

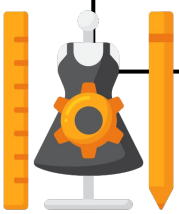
$$P = 2\text{ cm} + 2\text{ cm} + 2\text{ cm}$$

$$P = 6\text{ cm}$$

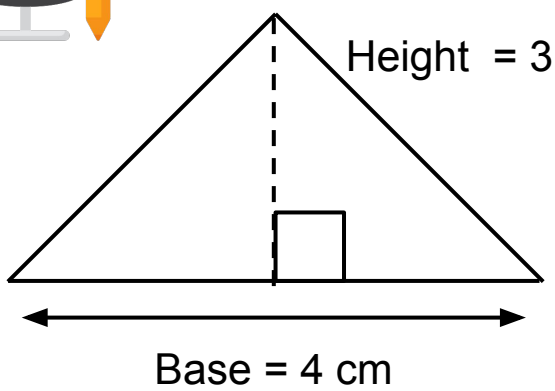
AREA OF TRIANGLE

The area of a triangle can be defined as the total space or region which is enclosed inside any types of triangle.

$$A = \frac{1}{2} \times b \times h$$



b = base; h = perpendicular height



$$A = \frac{1}{2} \times b \times h$$

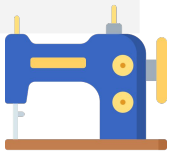
$$A = \frac{1}{2} \times 4\text{ cm} \times 3\text{ cm}$$

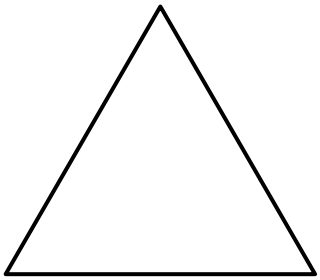
$$A = \frac{1}{2} \times 12\text{ cm}^2$$

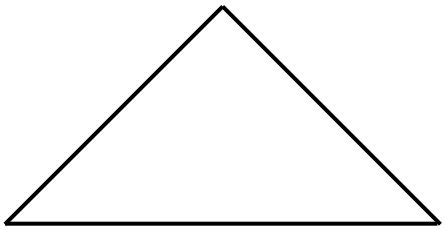
$$A = 6\text{ cm}^2$$

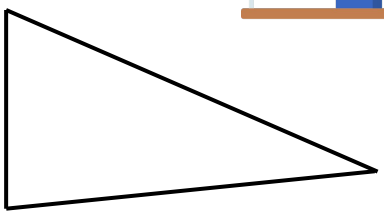
LET'S PRACTICE!

Name the different kinds of triangles shown below.

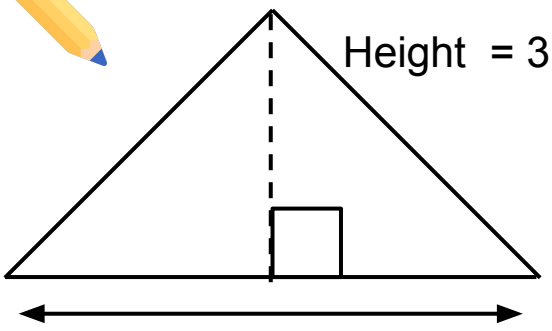








Solve for the area and perimeter of the given triangles.



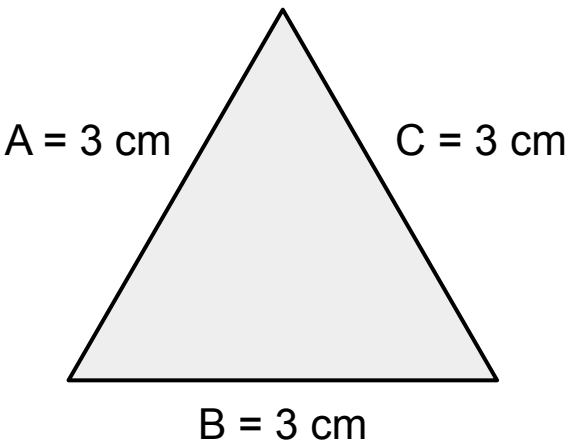


TABLE OF ACTIVITIES

THE ASPIRING MODEL

G5 Basic

You are an aspiring model. You are going to attend an interview for your dream fashion school. Identify what is being described below as part of the interview process.

1.

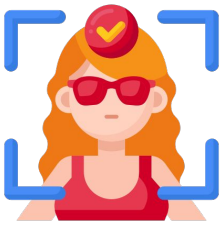
A three-sided polygon which closes in a space.

2.

A triangle with two equal sides.

3.

A triangle with three equal sides.



4.

A triangle with no equal sides.

5.

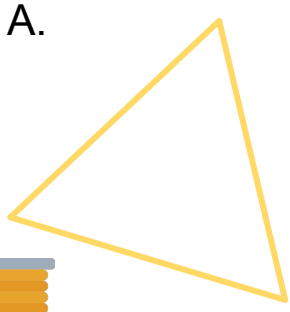
This is the number of angles for each triangles.

MY DREAM COMPANY

G5 Basic

Submit your own design to your dream company. To help you with it, identify the type of the triangles in the boxes below. Write down the letter of the boxes for each types below.

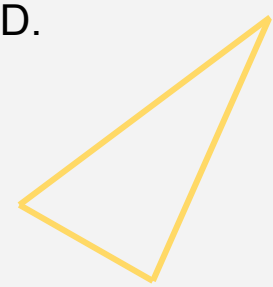
A.



B.

C.

D.



E.

F.

EQUILATERAL:

ISOSCELES:

SCALENE:

LOVE FOR DRAWING

G5 Basic

As a child, you love to draw different types of clothing. Describe and illustrate the different types of triangles based on its sides.

EQUILATERAL

DESCRIBE:	DRAW:

ISOSCELES

DESCRIBE:	DRAW:

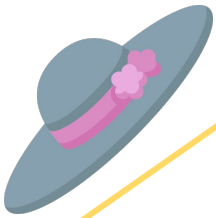
SCALENE

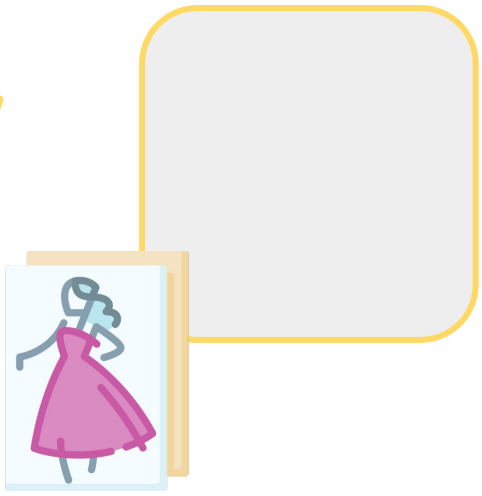
DESCRIBE:	DRAW:

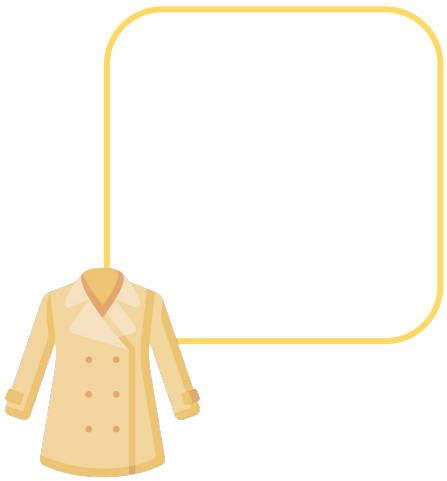
FASHION GURU

G5
Basic

The famous fashion guru for the year visited your school. As a test for all the students, you need to count the total number of triangles in the illustration below.



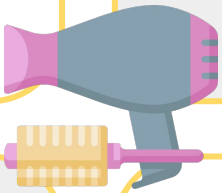


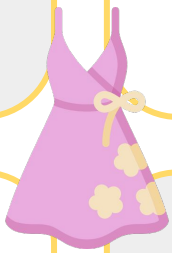


DAY-TO-DAY TRIANGLES

G5
Basic

To enter your dream school, you need to submit different types of drawing. One of which is to draw day-to-day objects which depicts a triangle shape. Draw 6 objects in the spaces provided below.



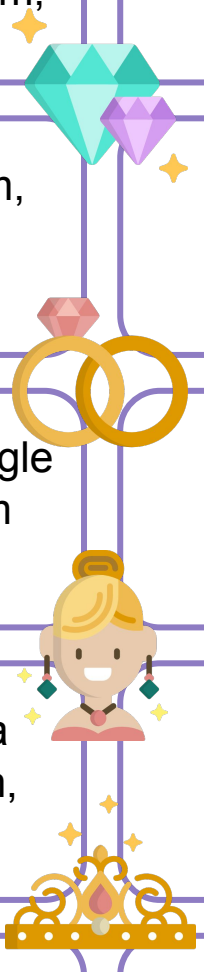


MATCHING COLORS

G6 Advanced

Colors for the outfits needs to be matching. Shade the rounded rectangle that matches each other with the same color.

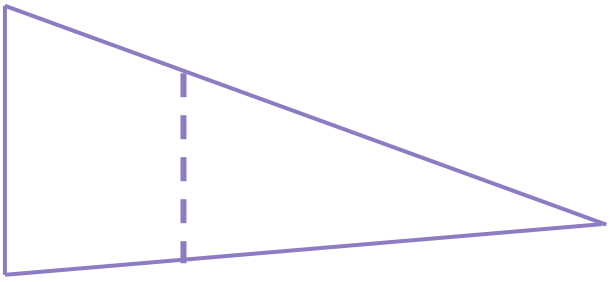
An equilateral triangle has sides which has measurements of 4 cm, 4 cm, and 4 cm.	**22 cm**
A triangle with 12 cm, 6 cm, and 4 cm sides has this perimeter.	**33 cm**
This the perimeter of a triangle with 7 cm, 4 cm, and 2 cm sides.	**12 cm**
What is the perimeter of a triangle with 10 cm, 12 cm, and 11 cm sides?	**14 cm**
What is the perimeter of a triangle with sides of 5 cm, 5 cm, and 4 cm.	**13 cm**

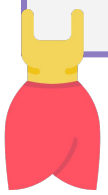


MODELS' OUTFITS

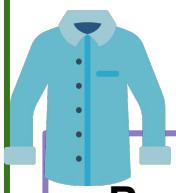
G6 Advanced

Measure the dresses for the models' outfits for the event next week. Solve the area of the triangles below using their given bases and heights. Please show your solution too.

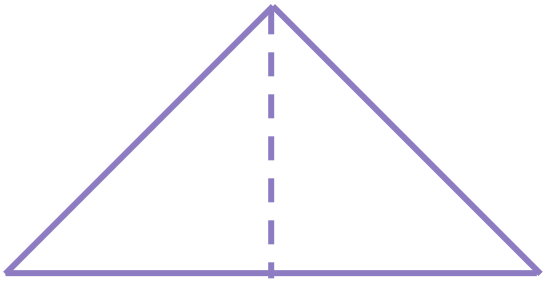


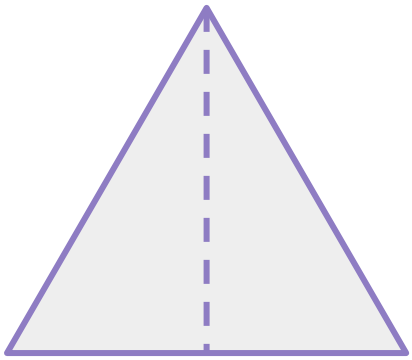


B = 12 cm
H = 4 cm



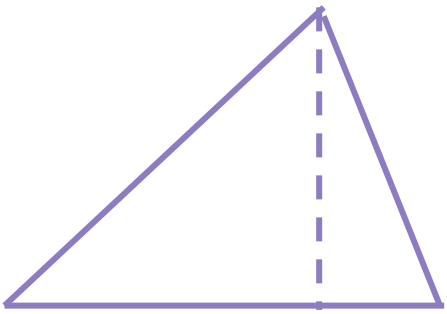
B = 14 cm
H = 5 cm





B = 8 cm
H = 10 cm

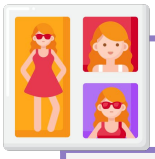
B = 11 cm
H = 3 cm



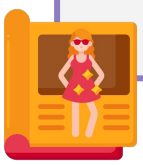
THE GUEST LIST

G6 Advanced

The guest list for the event is almost complete. As requested by some of your guests, you need to complete the table below. Find the area and/or perimeter of the triangles based on the given.



GIVEN	AREA	PERIMETER
A = 12 cm B = 10 cm C = 5 cm H = 3 cm	1.	**27 cm**
A = 8 cm B = 4 cm C = 7 cm H = 2 cm	2.	3.
A = 6 cm B = 6 cm C = 6 cm H = 4 cm	4.	**18 cm**
A = 2 cm B = 3 cm C = 3 cm H = 5 cm	**7.5 cm^2**	5.
A = 4 cm B = 4 cm C = 2 cm H = 5 cm	6.	7.



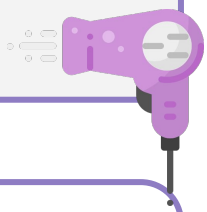
DIFFERENT CONCEPTS

G6 Advanced

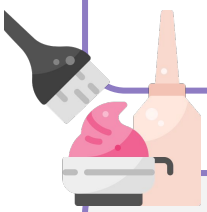
Fashion has different concepts. There are also some of basic concepts related to triangles. Show the formula for each of the concepts written below.

BASIC PROPORTIONALITY THEOREM

PYTHAGOREAN THEOREM



AREA OF A TRIANGLE



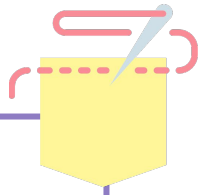
PERIMETER OF A TRIANGLE

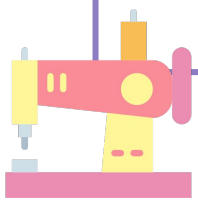
TWO THEOREMS

G6 Advanced

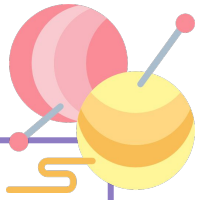
There are many things to learn about fashion. But you need to pass your Math exam by explaining in your own words the Basic Proportionality Theorem and Pythagorean Theorem.

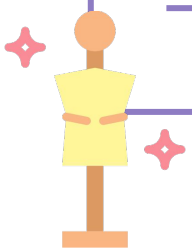
Basic Proportionality Theorem





Pythagorean Theorem





ANSWER GUIDE

Activity 1

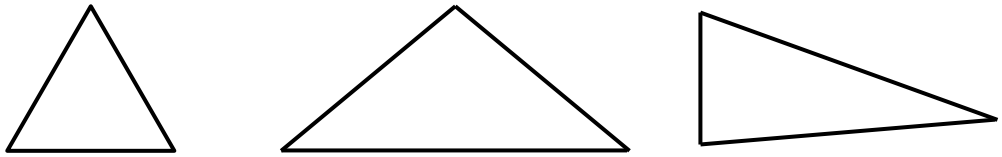
1. Triangle
2. Isosceles Triangle
3. Equilateral Triangle
4. Scalene Triangle
5. Three

Activity 2

Equilateral: A, E
Isosceles: C, F
Scalene: B, D

Activity 3

Equilateral - Triangle with all three sides having the same lengths.
Isosceles - Triangle with two sides having the same lengths.
Scalene - Triangle with all sides not having the same lengths.



Activity 4

1. 11
2. 6

Activity 5

Cheese, Pizza, Ice cream cone, Traffic sign, Hanger, Mountain
**Answers may vary.*

ANSWER GUIDE

Activity 6

1. An equilateral triangle has sides which has measurements of 4 cm, 4 cm, and 4 cm. - 12 cm
2. A triangle with 12 cm, 6 cm, and 4 cm sides has this perimeter. - 22 cm
3. This the perimeter of a triangle with 7 cm, 4 cm, and 2 cm sides. - 13 cm
4. What is the perimeter of a triangle with 10 cm, 12 cm, and 11 cm sides? - 33 cm
5. What is the perimeter of a triangle with sides of 5 cm, 5 cm, and 4 cm. - 14 cm

Activity 7

1. 24 cm^2
2. 35 cm^2
3. 40 cm^2
4. 16.5 cm^2

Activity 8

1. 15 cm^2
2. 4 cm^2
3. 19 cm
4. 5 cm^2
5. 8 cm
6. 4.5 cm^2
7. 10 cm

Activity 9

Basic Proportionality Theorem

$$\frac{AD}{DB} = \frac{AE}{EC}$$

Pythagorean Theorem

$$\mathbf{XZ^2 = XY^2 + YZ^2}$$

ANSWER GUIDE

Activity 9

Area of a Triangle

$$A = \frac{1}{2} x\ b\ x\ h$$

Perimeter of a Triangle

$$P = a + b + c$$

Activity 10

Basic Proportionality Theorem

If a line is parallel to a side of a triangle which intersects other two sides in distinct points, then the line divides other two sides in proportion.

Pythagorean Theorem

If a line is parallel to a side of a triangle which intersects other two sides in distinct points, then the line divides other two sides in proportion.

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