SNBP International & Sr. Secondary School, Chikhali, Pune.
Affiliation No. 1130703
Academic session 2024-25
Notes-(Term-2)
Sub-math

Prepared by -Pranjali Patil L-11 Angles and Triangles

Pre –Activity-Solved in the textbook

Look at the picture and answer the following questions.

a What type of lines are the strips of a zebra crossing - parallel lines or perpendicular lines? The strips of zebra crossing are parallel lines.

b What is the angle between the traffic light pole with respect to the ground?
Right angle ✓ Acute angle ☐

c What angle are the adjacent roads making at the roundabout? Do they always make this angle?
270°; No, the adjacent roads don't make this angle always. They might make different angles.

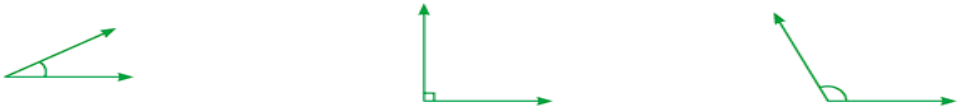
d Is the traffic light perpendicular to the roads? If yes, what angle do the two make? Yes 90°

48

Concrete Stage

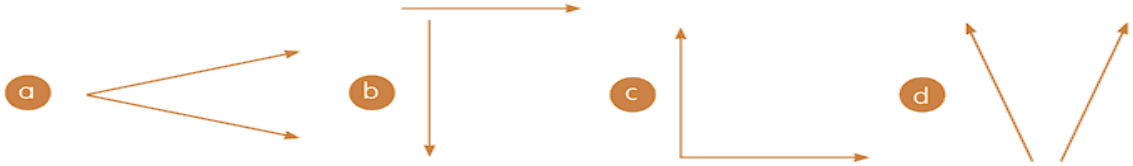
Show the following angles using your thumb and index finger. Draw by tracing them in your notebook, and measure the angles using a protractor.

a acute angle b right angle c obtuse angle



Pictorial Stage

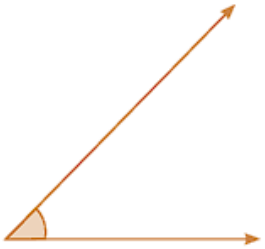
1 **Which of the following figures represents an angle?**



Answer: Only a and c figures represent an angle.

2 **Look at the given angles and classify them as acute, right, or obtuse. Measure them using a protractor.**

a

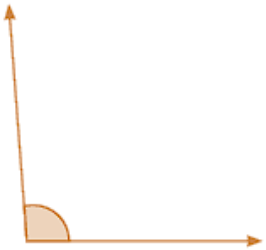


Acute angle

I think the angle is 45 degrees.

I measure the angle accurately as 45 degrees.

b

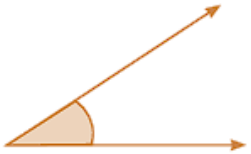


Obtuse angle

I think the angle is 90 degrees.

I measure the angle accurately as 95 degrees.

c

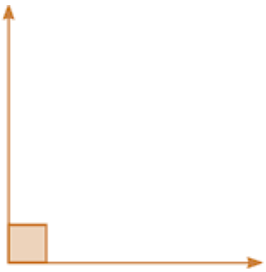


Acute angle

I think the angle is 35 degrees.

I measure the angle accurately as 30 degrees.

d

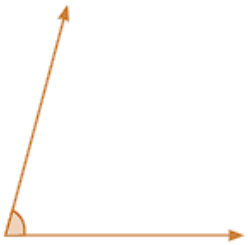


Right angle

I think the angle is 90 degrees.

I measure the angle accurately as 90 degrees.

e



Acute angle

I think the angle is 80 degrees.

I measure the angle accurately as 80 degrees.

f

Obtuse angle

I think the angle is 120 degrees.

I measure the angle accurately as 120 degrees.

3 **Write the angles that the clock below makes by taking a look at it.**

A — Acute angle

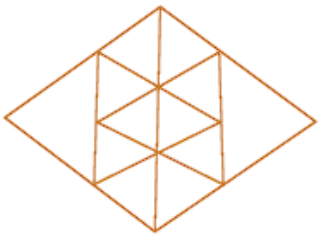
B — Right angle

C — Obtuse angle

D — Straight angle

E — Right angle

4 **The number of triangles in the given figure is**



a 12 ☐ b 14 ☐

c 16 ✓ d 20 ☐

Abstract Stage

1 **Draw the following angles using protractor.**

a 60° b 80° c 140° d 55°

2 **Can a triangle have**

a two right angles? No

b two obtuse angles? No

c two acute angles? Yes

Concrete Stage

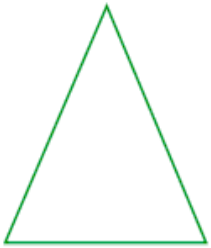
Use a ruler and a protractor to draw the following triangles. Cross-check both the properties of the triangle that we have discussed.

a acute triangle

b obtuse triangle

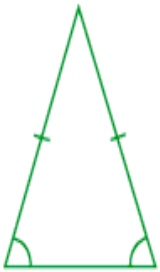
c right triangle

d equilateral triangle



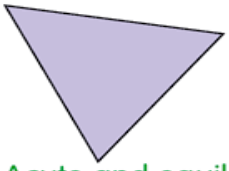
e scalene triangle

f isosceles triangle



Pictorial Stage

Observe the triangles and classify them on the basis of their angles. Measure the sides of each triangle, and then classify them on the basis of the sides.

a 

Acute and equilateral triangle

b 

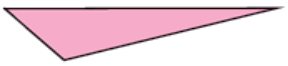
Right and scalene triangle

c 

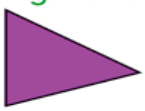
Acute and equilateral triangle

d 

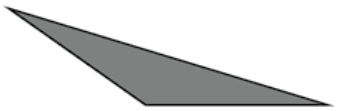
Right and scalene triangle

e 

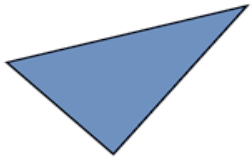
Obtuse and scalene triangle

f 

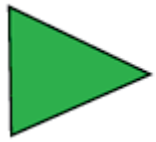
Acute and isosceles triangle

g 

Obtuse and scalene triangle

h 

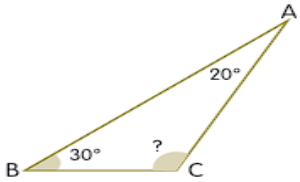
Acute and scalene triangle

i 

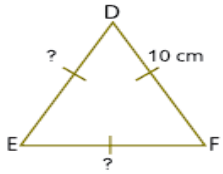
Acute and isosceles triangle

Abstract Stage

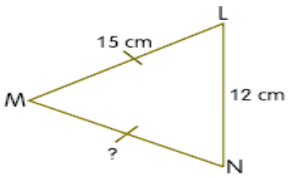
1 Work out the missing values.

a 

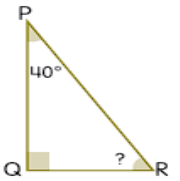
$\angle C = 180° - (\angle A + \angle B) = 180° - 50° = 130°$

b 

ED = EF = DF = 10 cm

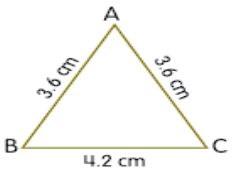
c 

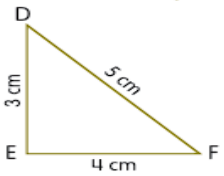
MN = ML = 15 cm

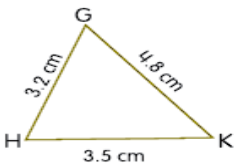
d 

$\angle R = 180° - (\angle P + \angle Q) = 180° - 130° = 5($

2 Classify the following triangles with respect to their sides.

a 

b 

c 

3 **Is it possible to form a triangle by three line segments of the following lengths?**

a) 8 cm, 5 cm, 15 cm — No

b) 6 cm, 7 cm, 13 cm — No

c) 7 cm, 6 cm, 11 cm — Yes

d) 6.5 cm, 16.5 cm, 5.6 cm — No

e) 6 cm, 6 cm, 6 cm — Yes

f) 7 cm, 8 cm, 10 cm — Yes

4 **State whether the following statements are true or false.**

a) A triangle having only two equal sides is called an equilateral triangle — F

b) An equilateral triangle is also an isosceles triangle. — T

c) The sum of any two sides of a triangle is always greater than the third side. — T

d) Each angle of an isosceles triangle is 60°. — F

e) Two angles of an isosceles triangle are always equal. — T

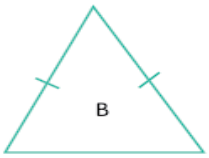
Blooming Questions

1 **Draw 6 different types of triangles. Also, write the type of each triangle below it.**

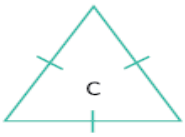
Answer: Answer may vary.

2 **Look at the figures below and answer the questions by putting a tick (✓) under the proper header.**

scalene triangle



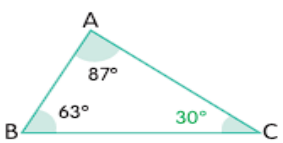
isosceles triangle

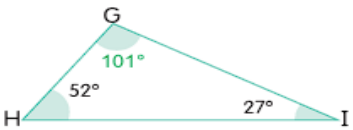


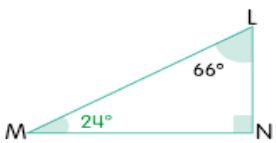
equilateral triangle

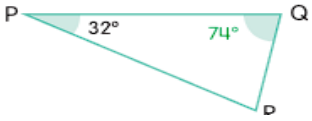
		Figure		
		A	B	C
a	None of the sides are equal	✓		
b	All the sides are equal			✓
c	Any two sides are equal		✓	
d	One angle is 90°			

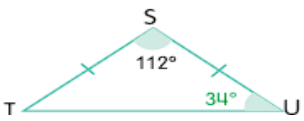
3 **Work out the missing angles in the following figures.**

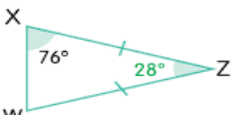
a) 

b) 

c) 

d) 

e) 

f) 

4 Match the types of triangles to the correct properties.

a	Obtuse angled	i.	3 sides of equal length
b	Acute angled	ii.	2 sides of equal length
c	Scalene	iii.	All sides are of different lengths
d	Isosceles right angled	iv.	3 acute angles
e	Isosceles	v.	1 right angle
f	Right angled	vi.	1 obtuse angle
g	Equilateral	vii.	1 right angle with two sides of equal length

5 Can a triangle have

a	Each angle greater than 60°?	No
b	Each angle less than 60°?	No
c	Each angle equal to 60°?	Yes

6 Fill in the blanks.

a. A triangle is formed by joining three ___non collinear___ points.

b. A triangle has ___three___ sides and ___three___ angles.

c. The sides of a scalene triangle are of different lengths

d. The sum of any two sides of a triangle is ___greater___ than the third side.

e. The sum of the angles of a triangle is _180 degrees_

f. One angle of a right triangle measure _90 degrees_

g. If one angle of a triangle measures 120°, it is _obtuse triangle

Post –activity-Mental math problems solve in the NB.

Sub. Teacher H.O.D. Co-ordinator Principal