# MATHS

# BOOKS - MBD

# UNDERSTANDING ELEMENTARY SHAPES

## Example

**1.** What is the disadvantage of comparing line segments by mere observation?

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**2.** Why is it better to use a divider,than a ruler,while measuring the length of a line segment?

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**3.** Draw any line segment,say $\overline{AB}$.Take any pointC lkying in between A and B.Measure the lengths of AB,BC and AC.Is AB=AC+CB?

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**4.** If A,B,C are three points on a line such that AB= 5 cm,BC = 3 cm and AC = 8 cm,which one of them lkies between the other two?

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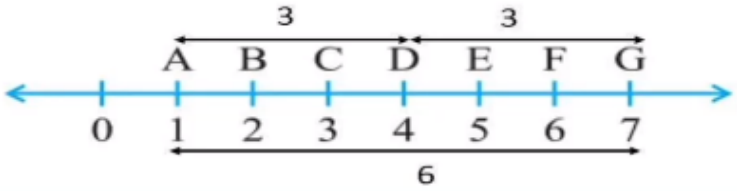
**5.** Verify whether D is the mid point of $\overline{AG}$.



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**6.** If B is the mid point of $\overline{AC}$ and C is the mid point of $\overline{BD}$ where A,B,C,D lie on a straight line ,say why $AB = CD$?

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**7.** Draw five triangles and measure all the line segments of each.Check if the sum of any two sides is always less than the third side.

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**8.** What is the angle name for half a revolutin?

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**9.** What is the angle name for one-fourth revolution?

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**10.** Draw five other situations of one-fourth,half and three-fourth revolution on a clock.

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**11.** What fraction of clockwise revolution does the hour hand of a clock turn through,when it goes from:

3 to 9

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**12.** What fraction of clockwise revolution does the hour hand of a clock turn through, when it goes from:

$4$ to $7$.

A. $\frac{1}{4}$ Revolution

B. $\frac{3}{4}$ Revolution

C. $\frac{1}{2}$ Revolution

D. $\frac{1}{5}$ Revolution

**Answer: A**

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**13.** What fraction of clockwise revolution does the hour hand of a clock turn through,when it goes from:

7 to 10

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**14.** What fraction of clockwise revolution does the hour hand of a clock turn through,when it

goes from:

12 to 9

Watch Video Solution

**15.** What fraction of revolution clockwise does the four hand of a clock turn through,when it goes from:

1 to 10

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**16.** What fraction of clockwise revolution does the hour hand of a clock turn through,when it goes from:

6 to 3.

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**17.** Where will the hand of clock stop if it Starts at 12 and makes 1/2 of a revolution,clockwise?

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**18.** Where will the hand of clock stop if it Starts at 2 and makes 1/2 of a revolution,clockwise?

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**19.** Where will the hand of clock stop if it Starts at 5 and makes 1/4 of a revolution,clockwise?

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**20.** Where will the hand of clock stop if it Starts at 5 and makes 3/4 of a revolution,clockwise ?

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**21.** Which direction will you face if you start facng:

East and make 1/2 of a revolution clockwise?

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**22.** Which direction will you face if you start facng:

East and make 1 1/2 revolution clockwise?

Watch Video Solution

**23.** Which direction will you face if you start facng:

West an make 3/4 revoluion ani-clockwise?

Watch Video Solution

**24.** Which direction will you face if you start facng:

south and make own full revolution?

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**25.** What part of revolution have you turned through if you stand facing:

east and turn clockwise to face north?

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**26.** What part of revolution have you turned through if you stand facing:

South and turn clockwise to face east?

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**27.** What part of revolution have you turned through if you stand facing:

west and turn clockwise to face east?

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**28.** Find the number of right angle turned through by the hour hand of a clock when if goes from:

3 to 6

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**29.** Find the number of right angle turned through by the hour hand of a clock when if goes from:

2 to 8

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**30.** Find the number of right angle turned through by the hour hand of a clock when if goes from:

5 to 11

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**31.** Find the number of right angle turned through by the hour hand of a clock when if

goes from:

10 to 1

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**32.** Find the number of right angle turned through by the hour hand of a clock when if goes from:

12 to9

Watch Video Solution

**33.** Find the number of right angle turned through by the hour hand of a clock when if goes from:

12 to 6

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**34.** How many right angles do you make you start facing :

south and turn clockwise to west

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**35.** How many right angles do you make you start facing :

north and turn anitclockwise to east

Watch Video Solution

**36.** How many right angles do you make you start facing :

west and turn to west

Watch Video Solution

**37.** How many right angles do you make you start facing :

south and turn to north.

Watch Video Solution

**38.** Where will the hour hand of a clock stop if it starts:

from 6 and turns through 1 right angles

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**39.** Where will the hour hand of a clock stop if it starts:

from 8 and turns through 2 right angles.

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**40.** Where will the hour hand of a clock stop if it starts:

From 10 and turns through 3 right angles.

Watch Video Solution

**41.** Where will the hour hand of a clock stop if it starts:

from 7 and turns through 2 straight angles.

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**42.** The hour hand of a cllock moves from 12 to 5.Is the revolution of the hour hand more than 1 right angle?

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**43.** What does the angle look like ?The hour hand of the clock moves 5 to 7 .Is the angle moved by hour hand more than 1 right angle?

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**44.** Draw the folowing and check the angle with your RA tester.

going from 12 to 2.

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**45.** Draw the folowing and check the angle with your RA tester.

from 6 to 7

Watch Video Solution

**46.** Draw the folowing and check the angle with your RA tester.

from 4 to 8

Watch Video Solution

**47.** Draw the folowing and check the angle with your RA tester.

from 2 to 5.

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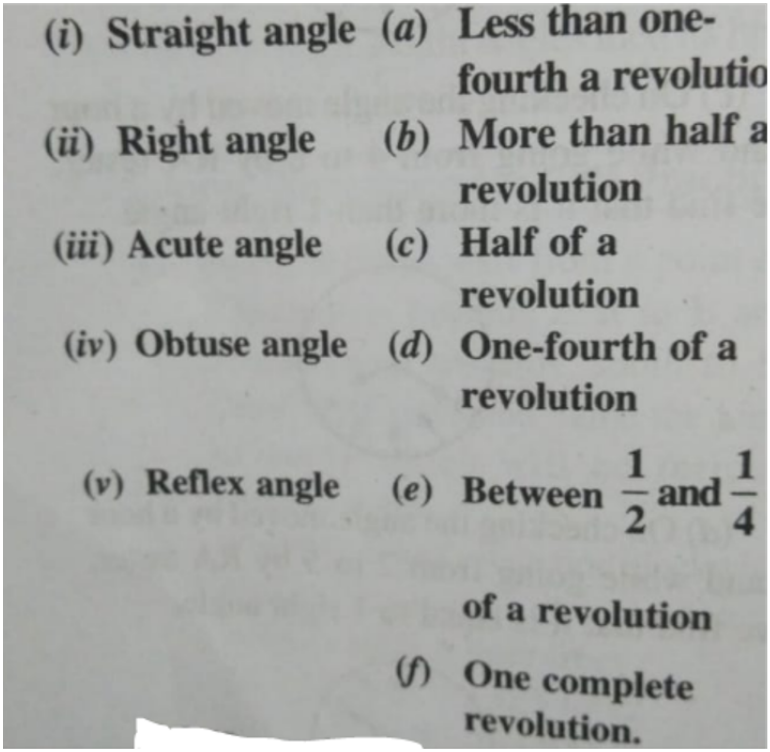
**48.** Match the following:



| | | |
|---|---|---|
| (*i*) Straight angle | (*a*) | Less than one-fourth a revolutio |
| (*ii*) Right angle | (*b*) | More than half a revolution |
| (*iii*) Acute angle | (*c*) | Half of a revolution |
| (*iv*) Obtuse angle | (*d*) | One-fourth of a revolution |
| (*v*) Reflex angle | (*e*) | Between $\frac{1}{2}$ and $\frac{1}{4}$ of a revolution |
| | (*f*) | One complete revolution. |

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**49.** Classify each one of the following angles as

right,straight,acute,obtuse or reflex:

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**50.** What is the measure of

a right angle?

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**51.** What is the measure of

a straight angle?

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**52.** Say True or False:

The measure of an acute angle $< 90^\circ$.

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**53.** Say True of False:

The measure of an obtuse angle $< 90^\circ$.

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**54.** Say True of False:

The measure of a reflex angel $> 180^\circ$.

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**55.** Say True of False:

the measure of one complete revolution = $360^\circ$.

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**56.** Say True of False:

If $m\angle A = 53^\circ$ and $m\angle B = 35^\circ$ then $m\angle A > m\angle B$.

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**57.** Write down the measures of :

some acute angles.

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**58.** Write down the measures of :

some obtuse angles.

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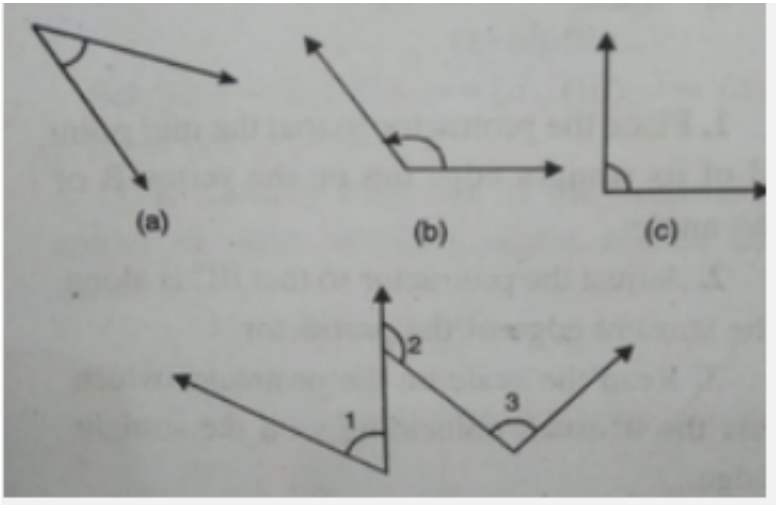
**59.** Measure the anbgles given below using the Protractor and write down the measure.

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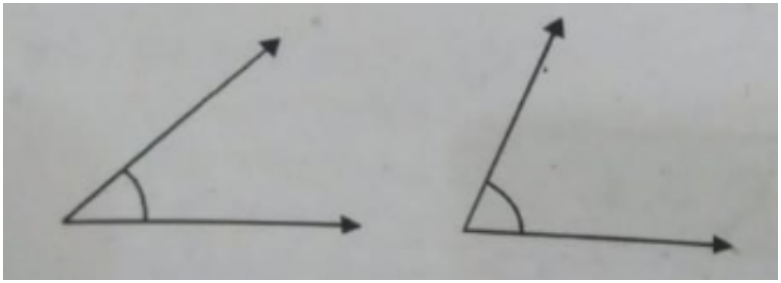
**60.** Which angle has a large measure ?First estimate and then measure.

Measure of Angle A=**Measure of Angle B=**



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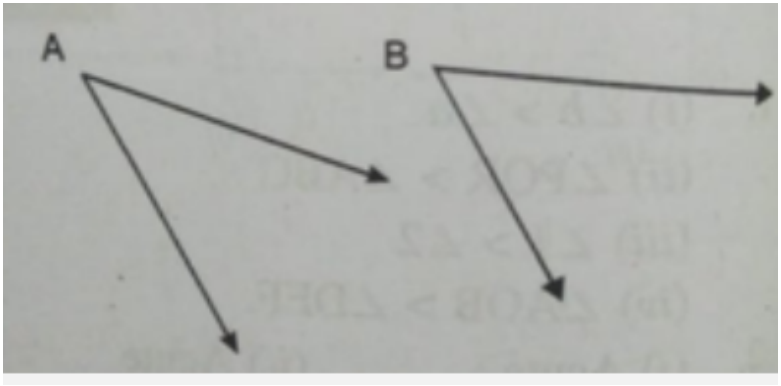
**61. From these two angles which has larger measure ?Estimate and then confirm by**

measureing them.

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62. Fill in the blanks with acute,obtuse,right or straight:

An angle whose measure is less than that ofa right angle is ..... .

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63. Fill in the blanks with acute,obtuse,right or straight:

An angle whose measure is greater than that of a right angle is ..... .

Watch Video Solution

64. Fill in the blanks with acute,obtuse,right or straight:

When the sum of the measures of two angles

is that of a right angle,then each one of them is ..... .

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65. Fill in the blanks with acute,obtuse,right or straight:

When the sum of the measures of two angles is that of a straight angle,one of them should be ..... or ..... .

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66. Find the measure of the angle shown in each figure.(First estimate with your eyes and then find the actual measure with a protractor).

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67. Find the angle meaure between the hands of the clock in each figure:

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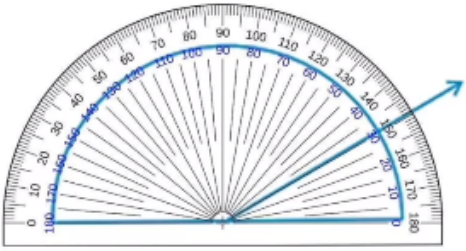
**68. Investigate:**

**In the givenfigure,protractor shows$30^\circ$.Look at the same figure through a magnifying galss.Does the angle become larger ?Does the**

size of the angle change!.\



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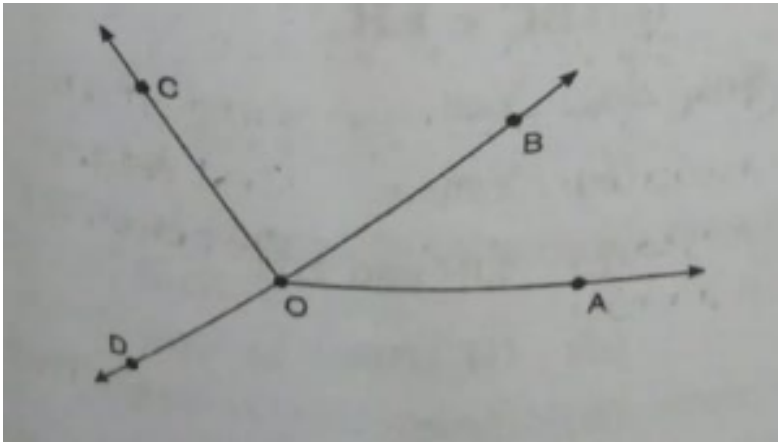
69. Measure and classify each angle,



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70. Which of the following are models for perpendicular line:

$(i)$ The adjacent edges of a table top.

$(ii)$ The lines of a railway track.

$(iii)$ The letter $V$

A. $(i), (ii), (iii)$

B. $(i), (iii)$

C. $(i)$

D. $(ii), (iii)$

Answer: C

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71. Which of the following are models for perpendicular line:

The lines of a railway track.

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72. Which of the following are models for perpendicular line:

The line segments forming the letter 'L'.

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73. Which of the following are models for perpendicular line:

The lines of a railway track.

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74. There are two" set-square" in your box.What are the measures of the anles that

ae formed at their corners?Do they have any angle measure that is common?

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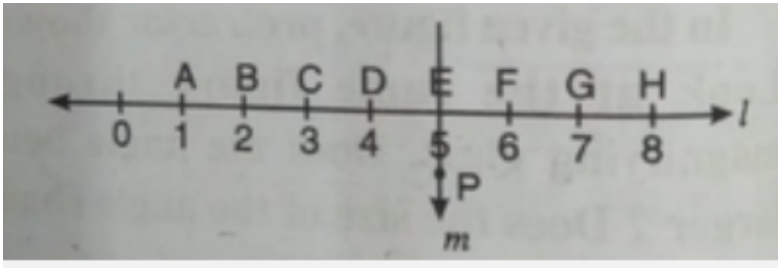
75. Study the digram.The line l is perpendicular to line m.

Is CE =EG?

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76. Study the digram.The line l is perpendicular to line m.

Does PE bisectCG ?

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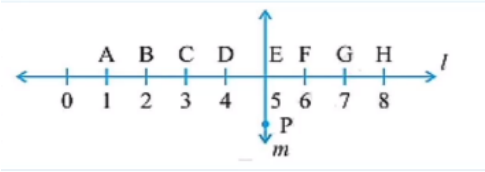
77. Study the digram.The line l is perpendicular to line m.

Identify any two line segments for which PE is

the perpendicular bisector.

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78. Study the digram.The line l is perpendicular to line m.

Are these true?

AC>FG

CD=GH

BC

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79. Name the types of following triangles:

Triangle with lengths of sides 7 cm,8cm and 9cm.

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80. Name the types of following triangles:

$\triangle (ABC)$ with AB=8.7 cm ,AC = 7cm and BC = 6cm.

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**81. Name the types of following triangles:**

$\triangle (PQR)$ **such that PQ=QR=PR=5cm.**

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**82. Name the types of following triangles:**

$\triangle (DEF)$ **with** $m\angle D = 90^\circ$**.**

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**83. Name the types of following triangles:**

$\triangle (XYZ)$ **with** $m\angle Y = 90^\circ$ **and XY=YZ.**

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**84. Name the types of following triangles:**

$\triangle LMN$ **with** $m\angle L = 30^\circ, m\angle M = 70^\circ$

**and** $m\angle M = 80^\circ$**.**

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85. Match the following :

| | |
|---|---|
| (*i*) sin (90°–A) | (*a*) Sin A |
| (*ii*) Cos 0° | (*b*) 0 |
| (*iii*) Sin 0° | (*c*) 1 |
| (*iv*) Cas (90°–A) | (*d*) Cos A |

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86. Name each of the following triangles in two different ways:(you may judge the nature of the angle by observation).

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87. Try to construct triangles using match sticks.Some are shown here.Can you make a triangle with

3 match sticks

(Remember you have to use all the available match sticks in each).

Name the type of triangle in each case.If you cannot make a triangle,think of reasons for it.

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88. Try to construct triangles using match sticks.Some are shown here.Can you make a triangle with

4 match sticks

(Remember you have to use all the available match sticks in each).

Name the type of triangle in each case.If you cannot make a triangle,think of reasons for it.

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89. Try to construct triangles using match sticks.Some are shown here.Can you make a triangle with

5 match sticks

(Remember you have to use all the available match sticks in each).

Name the type of triangle in each case.If you cannot make a triangle,think of reasons for it.

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90. Try to construct triangles using match sticks.Some are shown here.Can you make a triangle with

6 match sticks.

(Remember you have to use all the available match sticks in each).

Name the type of triangle in each case.If you cannot make a triangle,think of reasons for it.

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91. Say True or False:

Each angle of a rectangle is a right anlge.

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92. Say True or False:

The opposite sides of a rectangle are equal in length.

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93. Say True or False:

The diagonals of a square are perpendiculare to one another.

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94. Say True or False:

All the sides or rhombus are of equal length.

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95. Say True or False:

All the side of a parallelogram are of equal length.

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96. Say True or False:

The opposite sides of a trapezium are parallel.

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97. Give reasons for the following:

A square can be thought of as a special rectangle.

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98. Give reasons for the following:

A rectangle can be thought of as a special parallelogram.

Watch Video Solution

99. Give reasons for the following:

A square can be thought of as a special rhombus.

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100. Give reasons for the following:

Squares,rectangles ,parallelograms are all quadrilaterals.

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101. Give reasons for the following:

Square is also a parallelogram.

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102. A figure is said to be regular if its sides are equal in length and angles are equal in measure.Can you identify the regular quadrilateral?

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103. Examine whether the following are polygons.If any one among them is not,say why.

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104. Name each polygon. Make two more examples of each of these

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105. Draw a rough sketch of a regular hexagon.Connecting any three of its vertices,draw a triangle.Identify the type of the triangle you have drawn.

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106. Draw a rough sketch of a regular octagon. (Use squared paper if you wish).Draw a rectangle by joining exactly four of the verticesof the octagon.

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107. A diagonal is a line segment that joins any two vertices of the olygon and is not a side of the polygon.Draw a rough sketch of a pentagon and draw its diagonals.

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**108. Match the following :**

| | | | |
|---|---|---|---|
| (*i*) | sin (90°–A) | (*a*) | Sin A |
| (*ii*) | Cos 0° | (*b*) | 0 |
| (*iii*) | Sin 0° | (*c*) | 1 |
| (*iv*) | Cas (90°–A) | (*d*) | Cos A |

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**109. What shape is your instrument box?**

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110. What shape is

A brick

Watch Video Solution

111. What shape is

A match box

Watch Video Solution

112. What shape is

A road-roller

Watch Video Solution

113. What shape is

A, sweet laddu?

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Exercise

1. Ram and Sham start from a point A.Ram moves towards East to E and Sham moves towards South to S.Draw their paths and name the kind of angle which will be formed between them.

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2. What fraction of revolution clockwise does the hour hand of a clock turn through when it goes from:

12 to 6

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3. What fraction of revolution clockwise does the hour hand of a clock turn through when it goes from:

3 to 12

Watch Video Solution

4. What fraction of revolution clockwise does the hour hand of a clock turn through when it

goes from:

12 to 3

Watch Video Solution

5. What fraction of revolution clockwise does the hour hand of a clock turn through when it goes from:

9 to 3.

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6. What direction will you face if you start facing:

South and make $\frac{1}{4}$ of a revolution anticlockwise.

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7. What direction will you face if you start facing:

West and make $\frac{1}{2}$ of a revolution clockwise.

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8. What direction will you face if you start facing:

North and make $\frac{3}{4}$ fo a revolution clockwise.

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9. What part of revolution have you turnbed through if you stand facing:

West and turns clockwise to face South

Watch Video Solution

10. What part of revolution have you turnbed through if you stand facing:

South and turn anticlockwise to face East

Watch Video Solution

11. What part of revolution have you turnbed through if you stand facing:

North and turn anticlockwise South.

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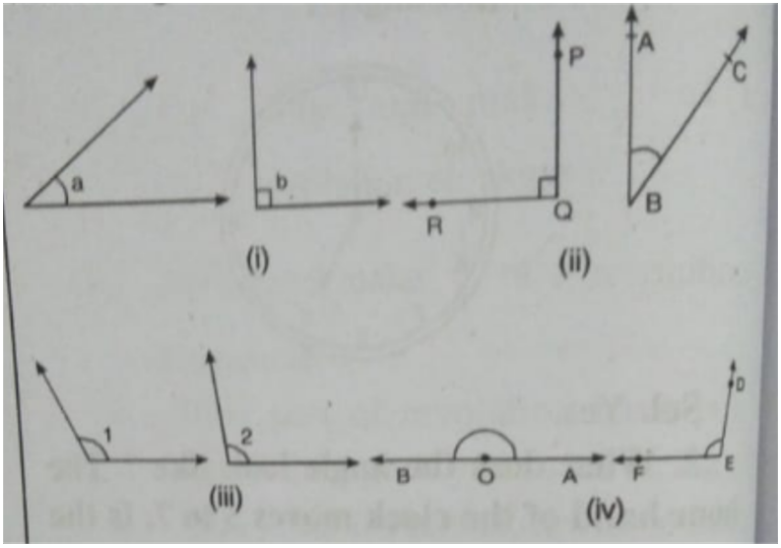
12. Compare the angles in each of the following pairs by observation and state which is greater:

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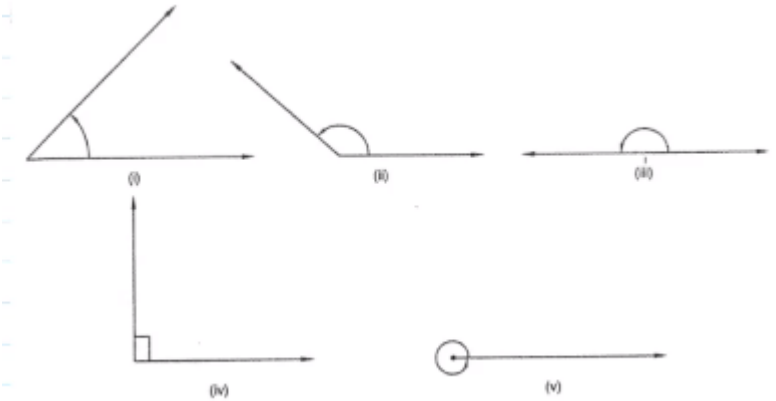
13. State the kind of each of the following angles:

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14. Classify the angles whose measrures are given below:

$30^\circ$

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**15. Classify the angles whose measrures are given below:**

$120^\circ$

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**16. Classify the anles whose measrures are given below:**

$55^\circ$

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**17. Classify the angles whose measrures are given below:**

$360^\circ$

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**18. Classify the anles whose measrures are given below:**

$270^\circ$

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**19. Classify the anles whose measrures are given below:**

$0^\circ$

Watch Video Solution

**20. Classify the anles whose measrures are given below:**

$180^\circ$

Watch Video Solution

**21. Classify the anles whose measrures are given below:**

$90^\circ$

Watch Video Solution

**22. Using pencil and a ruler draw some acute and obtuse angles and measure them.**

Watch Video Solution

**23. Fill in the blanks:**

**An angle whose measure is $180^\circ$ is called... angle.**

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**24. Fill in the blanks:**

**An angle whose measure lies between$0^\circ$ and ..... is called an acute angle.**

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25. Fill in the blanks:

The measure of complete angle is ..... .

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26. Fill in the blanks:

The degree measure of right angle is ..... .

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27. Fill in the blanks:

$180^\circ$ = ..... right angles.

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28. Amita is looking North.She turns to right through a right angle.In whch direction is she looking now?

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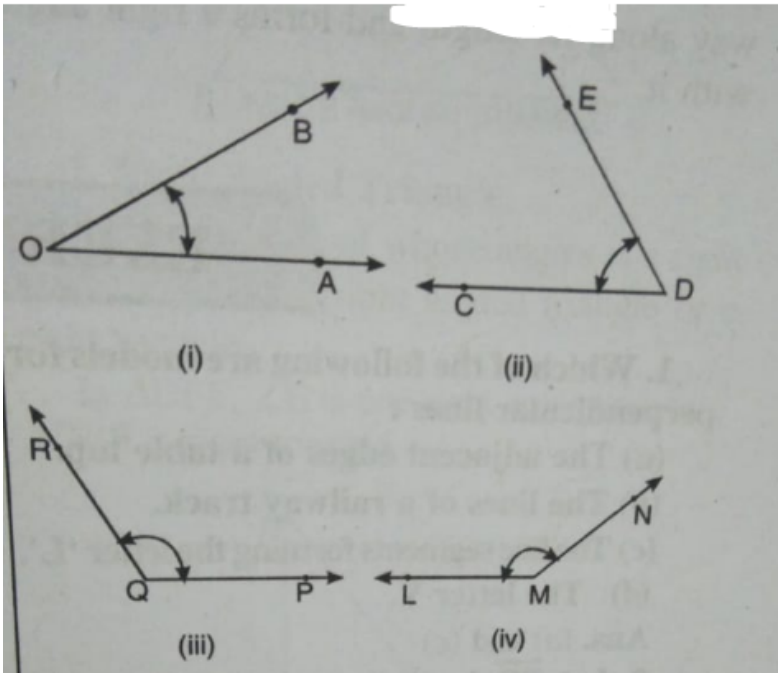
29. Measure each of the following angles with the help of a protractor and write the measures in degrees:

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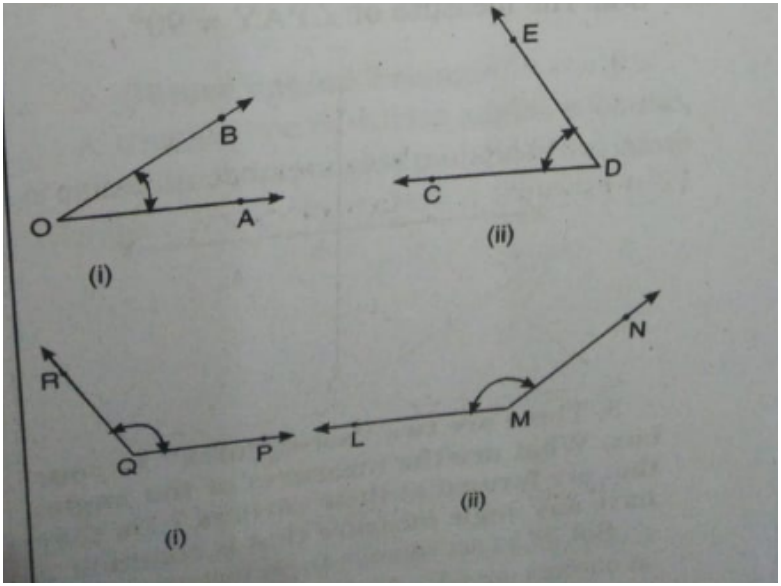
30. Measure each of the following angles and classify them as acute,obutse or right angels:

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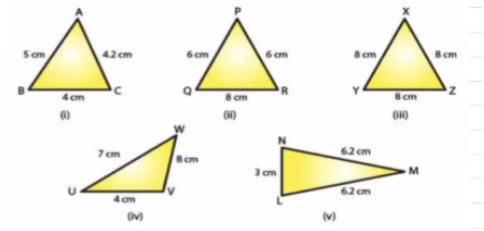
31. In the figure given below,there are five triangles.The length (in cm) of each side has

been idicated along the side.State for each triangle whether it is scalene,isosceles or equilateral.

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32. In the figure given ahead,there are five triangles .The measures of some of their angles have been indicated.State for each triangle whether it is acute ,right or obtuse.

Watch Video Solution

**33. State True or false:**

**A trapeqium has all angles equal.**

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**34. State True or false:**

**One angle of a rectangle is $60^\circ$**

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35. Say True or False:

All the sides or rhombus are of equal length.

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36. State True or false:

Opposite angles of a parallelogram are equal

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37. State True or false:

A quardrilateral is a five sided polygon.

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38. Fill in the blanks:

A quadrilateral has ..... angles,..... diagonals,..... sides.

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39. Fill in the blanks:

Sum of the angles of a Rhombus are ..... .

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40. Fill in the blanks:

A ||gm. whose all sides are equal and each angle equal to $90^\circ$ is called a ..... .

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41. Which kind of shape is formed when a bee builds its house?

A. Triangle

B. Quadrilateral

C. Hexagon

D. Pentagon.

Answer:

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42. The adjoining angle is an:

A. acute angle

B. obtuse angle

C. right angle

D. straight angle.

Answer:

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43. What is the angle name for half a revolutin?

A. acute angle

B. obtuse angle

C. straight angle

D. right angle

Answer:

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44. What is the angle name for one-fourth revolution?

A. right angle

B. straight angle

C. complete angle

D. acute angle

Answer:

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45. Fill in the blanks with acute,obtuse,right or straight:

An angle whose measure is less than that ofa right angle is ..... .

A. complete angle

B. acute angle

C. obtuse angle

D. straight angle.

Answer:

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46. Fill in the blanks with acute,obtuse,right or straight:

An angle whose measure is greater than that of a right angle is ..... .

A. acute angle

B. complete angle

C. obtuse angle

D. straight angle.

Answer:

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47. An angle whose measure is equal to $90^\circ$ , is called:

A. complete angle

B. right angle

C. straight angle

D. obtuse angle

Answer:

Watch Video Solution

48. An angle whose measure is the sum of the measurre of two right angle is :

A. Right angle

B. Complete angle

C. Obtuse angle

D. Straight angle.

Answer: D

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49. What shape is your instrument box?

A. Cube

B. Cuboid

C. Cylinder

D. Sphere.

Answer:

Watch Video Solution

50. What shape is

A road-roller

A. Sphere

B. Cube

C. Cylinder

D. Cuboid.

Answer:

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