MATHS

NCERT - NCERT MATHEMATICS(Hinglish)

UNDERSTANDING ELEMENTARY SHAPES

Exercise 5 8

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

2. A diagonal is a line segment that joins any two vertices of the polygon and is not a side of the polygon. Draw a rough sketch of a pentagon and draw its diagonals.
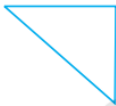
3. Name each polygon. Make two more examples of each of these.
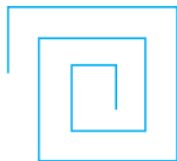

(a)　　　(b)　　　(c)　　　(d)

4. Draw a rough sketch of a regular hexagon. Connecting any three of its vertices, draw a

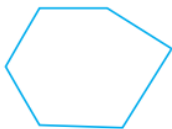triangle. Identify the type of the triangle you have drawn.

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

(a)   (b)   (c)   (d)

1. Classify each one of the following angles as right, straight, acute, obtuse or reflex

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2. Match the following :

(i) straight angle (a) Less than one-fourth of a revolution (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 $\frac{1}{4}$ and $\frac{1}{2}$ of a revolution (f) One complete revolution

Exercise 5 2

1. What part of a revolution have you turned through if you stand facing(a) east and turn clockwise to face north?(b) south and turn

clockwise to face east?(c) west and turn

clockwise to face east?

2. Find the number of right angles turned

through by the hour hand of a clock when it

goes from

(a) 3 to 6

(b) 2 to 8

(c) 5 to 11

(d) 10 to 1

(e) 12 to 9

(f) 12 to 6

3. How many right angles do you make if you start facing(a) south and turn clockwise to west?(b) north and turn anti-clockwise to east?(c) west and turn to west?(d) south and turn to north?

4. Where will the hour hand of a clock stop if it starts(a) from 6 and turns through 1 right angle?(b) from 8 and turns through 2 right angles?(c) from 10 and turns through 3 right angles?(d) from 7 and turns through 2 straight angles?

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

goes from(a) 3 to 9   (b) 4 to 7   (c) 7 to 10(d)

12 to 9   (e) 1 to 10   (f) 6 to 3

6. Where will the hand of a clock stop if it

(a) starts at 12 and makes $\dfrac{1}{2}$ of a revolution, clockwise?

(b) starte at 2 and makes $\dfrac{1}{2}$ of a revolution, clockwise?

(c) starts at 5 and makes $\dfrac{1}{4}$ of a revolution, clockwise?

(d) starts at 5 and makes $\dfrac{3}{4}$ of a revolution, clockwise?

7. Which direction will you face if you start facing (a) east and make $\dfrac{1}{2}$ of a revolution clockwise? (b) east and make $(1)\dfrac{1}{2}$ of a revolution clockwise? (c) west and make $\dfrac{3}{4}$ of a revolution anti-clockwise? (d) south and make one full revolution? (Should we specify

clockwise or anti-clockwise for this last question? Why not?)

Exercise 5 6

1. Name the types of following triangles :

(a) Triangle with lengths of sides $7cm$, $8cm$ and $9cm$.

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

(c) $\triangle PQR$ such that

$PQ = QR = PR = 5cm.$

(d) $\triangle DEF$ with $\angle D = 90°$

(e) $\triangle XYZ$ with $\angle Y = 90°$ and

$\angle XY = \angle YZ$

(f) $\triangle LMN$ with $\angle L = 30°$, $\angle M = 70°$ and

$\angle N = 80°$.

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2. Match the following :Measures of

Triangle   Type of Triangle(i) 3 sides of

equal length (a) Scalene(ii) 2 sides of equal length (b) Isosceles right angled(iii) All sides are of different length (c) Obtuse angled(iv) 3 acute angles (d) Right angled(v) 1 right angle (e) Equilateral(vi) 1 obtuse angle

(f) Acute angled(vii) 1 right angle with two sides of equal length (g) Isosceles

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

4. Try to construct triangles usingmatch sticks. Some are shown here.Can you make a triangle with(a) 3 matchsticks?(b) 4 matchsticks?(c) 5 matchsticks?(d) 6 matchsticks?(Remember you have to use all theavailable matchsticks in

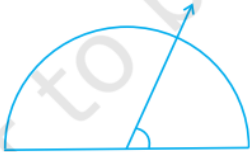each case)Name the type of triangle in each case.If you cannot make a triangle, think of reasons for it

Exercise 5 4

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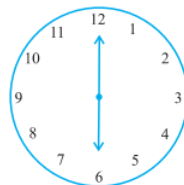
find the actual measure with a protractor).

2. Find the angle measure between the hands

of the clock in each figure :

9.00 a.m.   1.00 p.m.   6.00 p.m.

3. Say True or False : (a) The measure of an acute angle $< 90°$. (b) The measure of an obtuse angle $< 90°$ (c) The measure of a reflex angle $< 1806°$ (d) The measure of one complete revolution $= 360°$. (e) If m?

4. Write down the measures of

(a) some acute angles.

(b) some obtuse angles (give at least two examples of each)

5. What is the measure of

(i) a right angle?
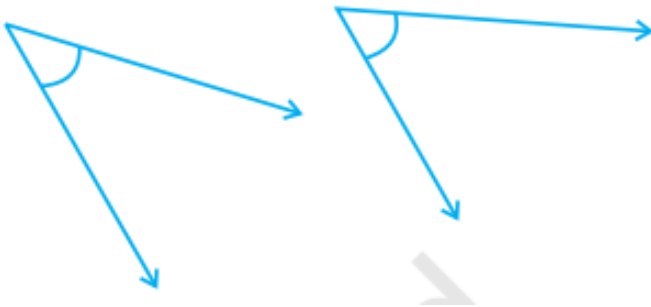
(ii) a straight angle?

**6.** From these two angles which haslarger measure? Estimate and thenconfirm by measuring them.

7. Fill in the blanks with acute, obtuse,right or straight :(a) An angle whose measure is less

than that of a right angle is_____.(b) An angle whose measure is greater than that of a right angle is _____.(c) An angle whose measure is the sum of the measures of two right anglesis _____.(d) When the sum of the measures of two angles is that of a right angle, then each one of them is _____.(e) When the sum of the measures of two angles is that of a straight angle and if one of them is acute then the other should be _____.
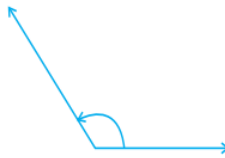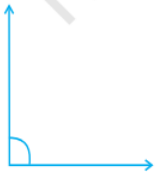
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8. .write down the measures:(a) some acute angles (b) some obtuse angles.4. Measure the angles given below using the Protractor and write down the measure
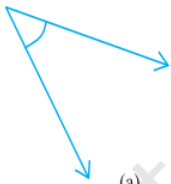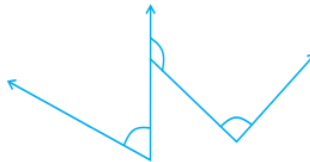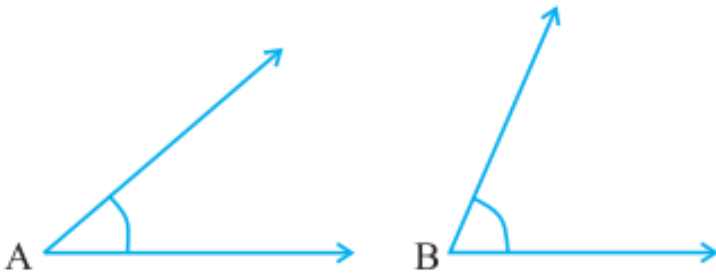

(a)

(b)

(c)

(d)

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9. Which angle has a large measure? First estimate and then measure. Measure of $\angle A =$ Measure of $\angle B =$

Exercise 5 9

1. Match the following :

(a) Cone   (i)

(b) Sphere   (ii)
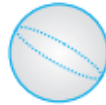
(c) Cylinder   (iii)

(d) Cuboid   (iv)

(e) Pyramid   (v)

Give two new examples of each shape

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2. What shape is(a) Your instrument box? (b) A brick?(c) A match box? (d) A road-roller?(e) A sweet laddu?

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Exercise 5 1

1. What is the disadvantage in comparing line segment by metre observation?

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2. Draw any line segment, say AB. Take any point C lying in between AandB. Measure the lengths of AB, BC and $AC. Is AB AB = AC + CB$ [Note : If A, B, C are any three points on a line such that $AC + CB = AB$, then we can be sure that C lies between A and B.
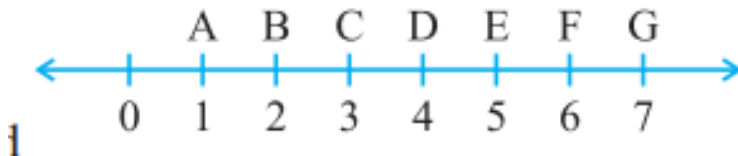
3. Why is it better to use a divider than a ruler, while measuring the length of a line segment?

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4. Verify, whether D is the mid point of AG.

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

6. Draw five triangles and measure their sides. Check in each case, if the sum of the lengths of any two sides is always less than the third side.

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

Exercise 5 7

1. 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?

2. Give reasons for the following :

(a) A square can be thought of as a special rectangle.

(b) A rectangle can be thought of as a special parallelogram.

(c) A square can be thought of as a special rhombus.

(d) Squares, rectangles, parallelograms are all quadrilaterals.

(e) Square is also a parallelogram.

3. Say True or False :

(a) Each angle of a rectangle is a right angle.

(b) The opposite sides of a rectangle are equal in length.

(c) The diagonals of a square are perpendicular to one another.

(d) All the sides of a rhombus are of equal length.
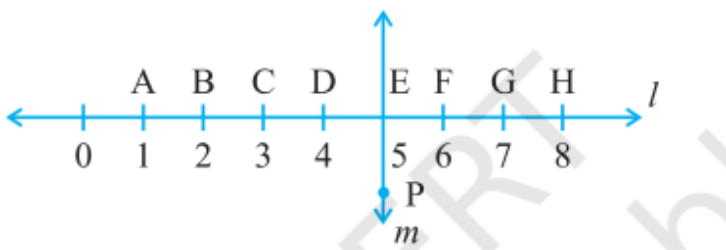
(e) All the sides of a parallelogram are of equal length.

(f) The opposite sides of a trapezium are parallel.

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Exercise 5 5

1. Study the diagram. The line l is perpendicular to line m (a) Is $CE = EG$ (b) Does PE bisect CG = (c) Identify any two line segments for which PE is the perpendicular bisector. (d) Are these true? (i) $AC > EG$ (ii) $CD = GH$ (iii) `BC

2. Which of the following are models for perpendicular lines :

(a) The adjacent edges of a table top.

(b) The lines of a railway track.

(c) The line segments forming the letter 'L'.

(d) The letter V.

3. There are two set-squares in your box. What are the measures of the angles that are

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

4. Let PQ be the perpendicular to the line segment XY. Let PQ and XY intersect in the point A. What is the measure of $\angle PAY$.