

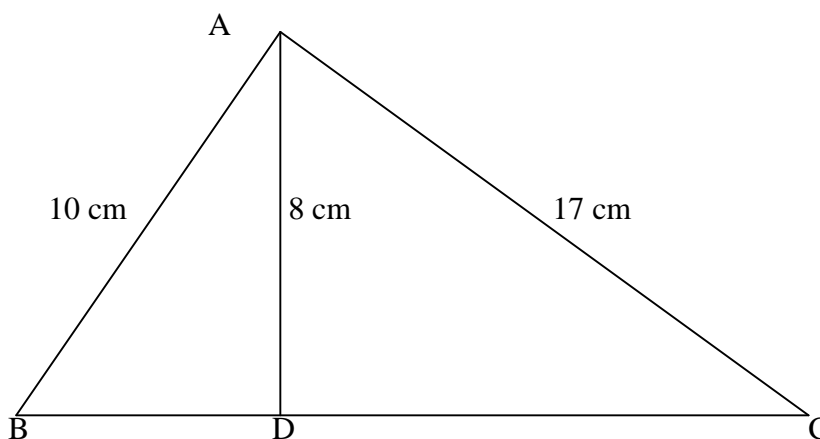
GRADE 7 ASSIGNMENT AND MODEL QUESTION PAPERS
MATHEMATICS WORKSHEET
PYTHAGORAS THEOREM

TYPE-A

1. The lengths of the sides of a right triangle are 7 cm and 24 cm. What is the length of its hypotenuse?
2. The hypotenuse of a right triangle is 13 cm long, if one of its sides is 12 cm, find the length of the other.
3. A ladder 50 dm long, when set against the wall of a house just reaches the window at a height of 48 dm, how far is the lower end of the ladder from the base of the wall?
4. The sides of triangle are 11 cm, 60 cm, and 61 cm. Show that it is a right angled triangle.
5. Find the diagonal of a rectangle whose length is 8 cm and breadth is 6cm.

TYPE-B

1. Two legs of right triangle are equal and the square of its hypotenuse is 72, find the length of each leg.
2. A ladder when set against the wall of a house just reaches the window at a height of 24 dm. If the lower end of the ladder is 7 dm from base of the wall, what is the length of the ladder.
3. A tree broke at point and did not separate. Its top touch the ground at distance of 12 dm from its base. If the point where it broke be at a height of 16 dm from the ground, what is the total height of the tree before it broke?
4. The sides of a triangle 2.5 dm, 6 dm and 6.5 dm. Show that it is a right triangle.
5. In the figure AD is perpendicular to BC, find the length of BC.



ANSWERS		TYPE A	
1. 25 cm	2. 5 cm	3. 14 cm	5. 10 cm
TYPE B			
1. 6 cm	2. 25 dm	3. 36 dm	5. 21 cm

THE INDIAN HIGH SCHOOL, DUBAI(2009-2010)
ASSIGNMENT
LINEAR EQUATIONS

GRADE:7

TYPE A

1. Write the statement in the equation form. Also find the numeral to make the statement true
statement
Seven less than p is 23
2. Solve and check your answer: $9x + 6 = 5x + 34$
3. One -fifth of a number is 7. Find the number
4. Find three consecutive numbers whose sum is 120
5. Ramu is 9 years older than somu. If the sum of their ages is 31years,how old is each?

TYPE B

1. Write the statement in the equation form and find the numeral to make true statement
One fourth of two fifths of a number is 36
2. Solve and check your answer

$$\frac{1}{6}x - \frac{4}{5}$$
3. Three times a number increased by 8 is same as twice the number increased by 15. Find the number
4. Solve the following equations:
 - a) $44 - 5(p-1) = 4$
 - b) $\frac{m}{4} - 4.6 = - 3.1$
5. John has Rs 50 more than what smith has. If Smith takes Rs 35 from John, the money he has now is twice of what is left with John. Find how much money did each has originally

THE INDIAN HIGH SCHOOL, DUBAI (2009-2010)
ASSIGNMENT
COMPARING QUANTITIES

GRADE: 7

TYPE A

1. Compare the ratios 5:8 and 10:12
2. 30 toffees are distributed between A and B in the ratio 2:3. Find, how much does each get?
3. Find the third proportional to 9 and 12

4. The ratio between the numbers of girls to that of boys in a school is 3:5. If the number of boys is 235, find
- The number of girls in the school
 - Total number of students in the school
5. A car travels 165 km in 3 hours. How long will it take to travel 440km?

TYPE B

6. Divide 117 pencils among three children in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$
7. The ratio of the length of a playground to its width is 5:3. Find the width if the length is 55metres
8. Find the mean proportional between 3 and 27
9. At a particular time, the shadow of a pole and tower are respectively 25m and 35m. If the height of the tower is 58m, find the height of the pole
10. 38 packets of 12 pens each, cost Rs.306. Find the cost of 62 packets of 10 pens each

THE INDIAN HIGHSCHOOL, DUBAI ASSIGNMENT (2009-2010)

GRADE: 7

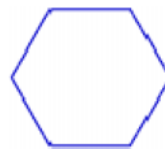
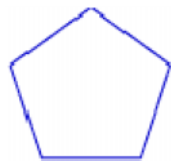
SYMMETRY

TYPE A

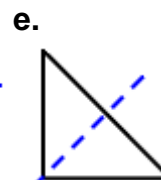
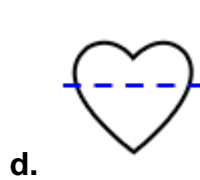
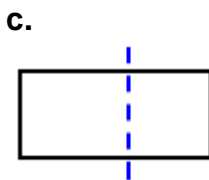
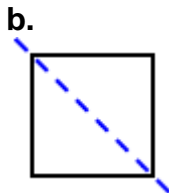
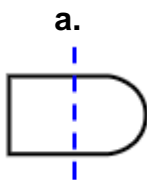
1. Draw the lines of symmetry in each of the following letters of the English alphabet

A B C D E H I O T U V W X

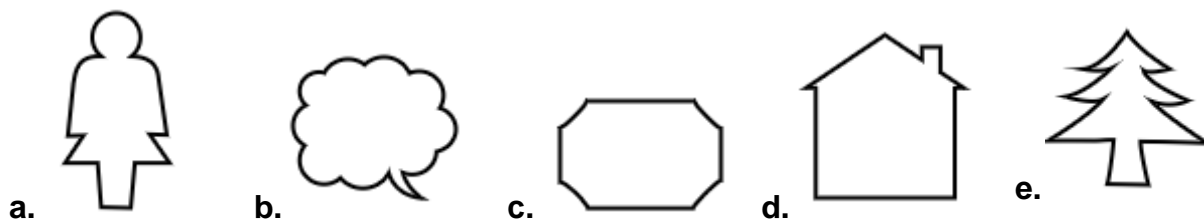
2. State the number of lines of symmetry and order of rotational symmetry of the following



3. Is the line drawn a symmetry line for the figure?



4. Are these figures symmetrical? Draw a symmetry line to those that are



5. List all letters of English alphabet which have both line symmetry and rotational symmetry

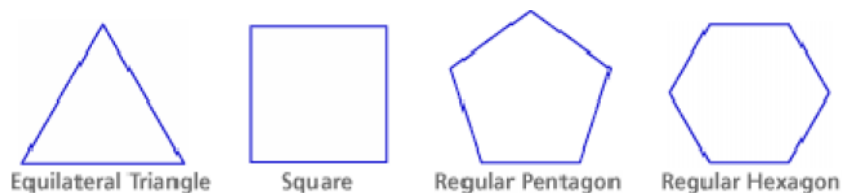
TYPE B

6.

- a. Each of these figures has rotation symmetry. Can you estimate the center of rotation and the angle of rotation?

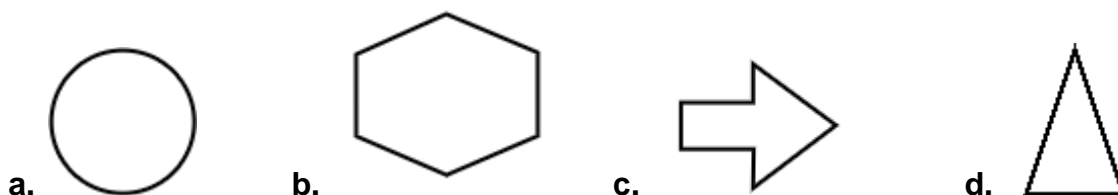


- b. Do the regular polygons have rotation symmetry? For each polygon, what are the center and angle of rotation?



7. Name the line of symmetry of the following shapes
- Equilateral triangle
 - Semicircle
 - Circle
8. How many lines of symmetry do the following have:
- A scalene triangle
 - A rhombus
 - A parallelogram
 - A right triangle with equal legs
 - A semi circle

9. Draw a hexagon with only 2 lines of symmetry and rotational symmetry of order 2
10. Draw different symmetry lines to these figures



Class: 7

THE INDIAN HIGH SCHOOL, DUBAI
WORKSHEET 2009-2010

Sub: Mathematics

Percentages

Type A

1. A crate contains 400 apples, 8 Dozen apples were found spoiled. Find the percentage of good apples in the crate?
2. Find the loss percent if the selling price is Rs.20 and the total loss is Rs.5?
3. Calculate the principal when
AMOUNT = Rs.4, 637.50 and SIMPLE INTEREST = Rs.1137.50?
4. "A" borrowed Rs.5,500 at 8% per Annum for 2 Years. Find the amount he pays at the end of the period?
5. If 120 is 20% of a number, then what is 120 % of that number?

Type B

- 1 The difference in the present ages of Sanjeev & Siddharth is 25yrs and the ratio is 3 :8. What is the sum of their present ages?
- 2 A man buy balloons 3 for a rupee and sells then at 2 for a rupee, find his gain percent?
- 3 Find the selling price if the cost price is Rs.20.25 and gain is 10 %?
- 4 A man bought a new scooter for Rs.17, 500. After 1 Year, its value decreased by 15 %. What is its value after 1 year?
- 5 In what time will a certain some become two and a half times of itself at 15 % per annum S.I. ?

THE INDIAN HIGH SCHOOL, DUBAI
WORKSHEET 2009-2010
Sub: Mathematics

Practical Geometry

Type A

1. Construct a triangle PQR in which $PQ = 6$ cm, $PR = 5$ cm and $QR = 4$ cm.
2. Construct a triangle ABC in which $AB = 4.6$ cm, $\angle A = 50^\circ$ and $\angle B = 30^\circ$
3. Construct a triangle PQR, right angled at R in which $PQ = 6$ cm and $QR = 5$ cm
4. Construct a triangle LMN in which $LM = 7$ cm, $MN = 3$ cm, and $\angle M = 60^\circ$
5. Construct a triangle ABC in which $AC = CB = 4$ cm, and $\angle B = 45^\circ$ is this a right angled triangle?

Type B

1. Construct and equilateral triangle whose each side is 5.3 cm.
2. Construct a triangle ABC, which is right angled at B, such that $BC = 5$ cm and AC is 6 cm. Then measure AB.
3. Construct a triangle ABC in which $AC = 6.5$ cm and $\angle A = 50^\circ$ and $\angle B = 60^\circ$
4. Construct a triangle ABC in which $AB = 8$ cm, $BC = 8$ cm, and $\angle B = 55^\circ$. Find $\angle A$ and $\angle C$.
5. Construct a right angle triangle in which base is 5.5 cm and the hypotenuse makes an angle of 30° with the base. Measure the other sides of the triangle.

Probability

GROUP A

- 1) A bag has 3 red marbles, 4 green marbles and 5 yellow marbles. What is the probability of selecting a green marble?
- 2) What is the probability of odd prime number when a die is thrown?
- 3) Find the probability of month having 30 days.
- 4) Find the median and mean of the set of numbers 12, 15, 17, 19, 22, 25
- 5) The mean of 12 observations is 4.2, if an observation 2.8 is detected, find the new mean.

GROUP B

- 1) Find the unknown number if the averages of 8 numbers is 35 and the other numbers are 31, 33, 38, 35, 43, 28

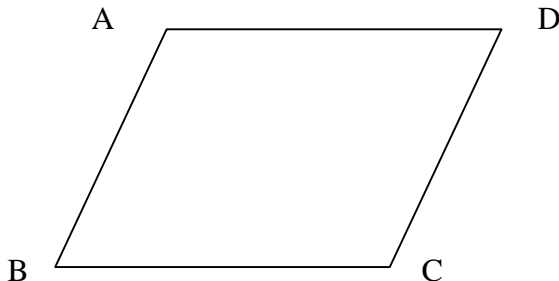
- 2) The average of five number is 35,If one number is excluded, the average is33.
Find the excluded number.
- 3) From an ordinary pack of 52 cards ,a card is taken .What is the probability that it is a face card?
- 4) Two coins are tossed together. What is the probability of getting at least one head?
- 5) Two dice are rolled .What is the probability of getting a sum of 10.?

THE INDIAN HIGH SCHOOL, DUBAI
WORKSHEET 2009-2010
Sub: Mathematics Class: 7

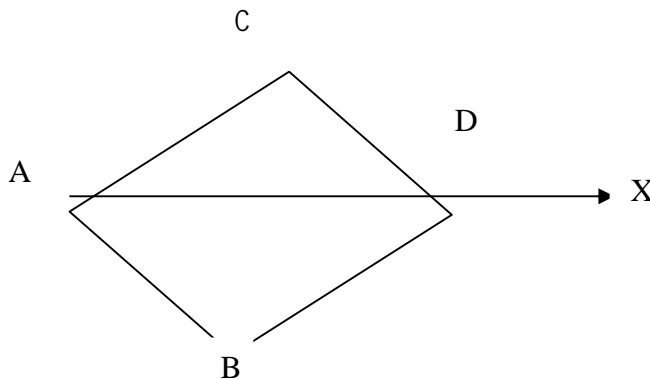
Congruence of Triangle

TYPE A

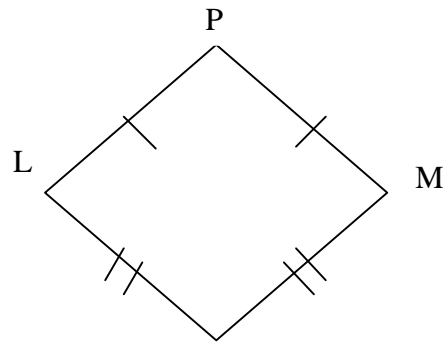
1. In fig. $AB \parallel DC$ and $AB = DC$.
 - a. Is $\angle BAC = \angle DCA$? Why?
 - b. Is $\triangle ABC = \triangle CDA$ by SAS congruence condition?
 - c. State the three facts you have used to answer part (b)



2. In fig. AX bisects angle BAC and angle BDC. Find the third pair of corresponding parts to ensure that $\triangle ABC$ congruent to $\triangle ACD$ by ASA congruence condition.



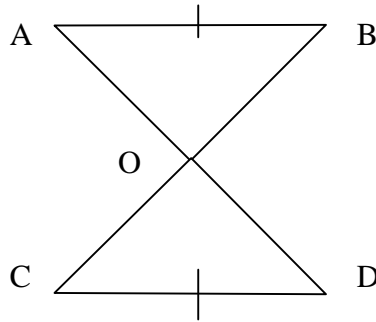
3. In the adjoining figure $PL = PM$ and $\angle P = \angle Q = \angle M$. Is triangle LPQ congruent to $\triangle PQM$?



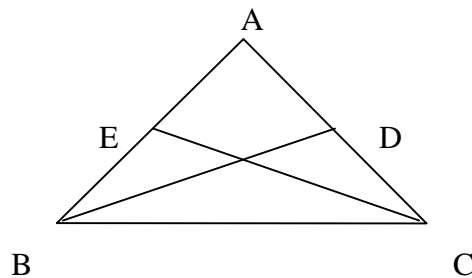
4. Given that $\triangle ABC$ is congruent to $\triangle RPQ$. Angle $A = 70^\circ$ and $\angle B = 50^\circ$, find $\angle P$, $\angle Q$ and $\angle R$
5. Triangle PRQ congruent to triangle LMN . If $PQ = 6$ cm, $PR = 5$ cm and $\angle P = 50^\circ$, find $\angle N$ and $\angle L$ if $LM = 5$ cm and $QR = MN$

Part B

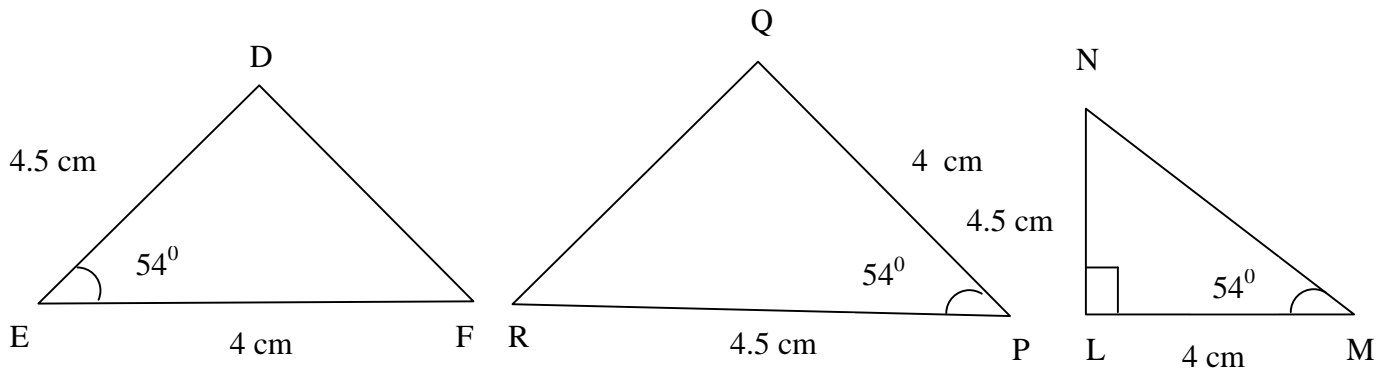
1. In the adjoining figure, $AB \parallel CD$ and $AB = CD$. Then prove that $\triangle AOB$ congruent to $\triangle DOC$



2. In the figure ABC is a triangle and BD and CE are perpendiculars to AC and AB respectively. If $BD = CE$ find the three pairs of corresponding parts which make $\triangle BCD$ congruent to $\triangle CBE$ by RHS congruence condition.



3. In an isosceles $\triangle DEF$, $DE = DF$, L and M are two points on the sides DE and DF respectively such that $DL = DM$, prove that $\triangle DEM$ congruent to $\triangle DFL$
4. All the three angles of a triangle ABC are equal to corresponding angles of $\triangle DEF$. Is $\triangle ABC$ congruent to $\triangle DEF$? Give reasons in support of your answer.
5. Look at the figure given below and state which two of the three triangles, are congruent to each other state the condition by which they are congruent.



CIRCUMFERENCE AND AREA OF A CIRCLE

Group A

- 1) The diameter of a semicircular field is 14m. Find its perimeter.
- 2) A well of diameter 180 cm has a stone parapet around it. If the outer edge of the parapet is 660cm, find the width of the parapet.
- 3) The ratio of the radii of two wheels is 4:5 what is the ratio of their circumference?
- 4) The area of two circles are in the ratio 49:64 find the ratio of their diameters.
- 5) From a circular sheet of radius 4 m a circle of radius 2 m is removed. Find the area of the remaining sheet ($\pi = 3.14$)

Group B

- 1) A circular ground has a radius 42m. A 7m, wide road runs outside it. Find the cost of constructing the road at RS 22 per m^2
- 2) Three horses are tied by a 14 m long rope on three corners of a rectangular field of 50 m by 24m. On how much area can they graze?
- 3) A wire when bent in the form of a circle encloses an area of 154 cm^2 . if the same wire is bent into the form of a square, find the area of the square.
- 4) From a square metal sheet of side 28 cm a circular sheet as big as possible is cut off .Find the area of the remaining part.
- 5) The diameter of a wheel is 21 cm how many revolutions will it make to cover 352m

WORK SHEET
Perimeter and Area

Group A

- 1) Find the area of a triangle whose base is 12.4 cm and the corresponding altitude is 7.5cm
- 2) The perimeter of a square garden is 222 m. find the area of the garden in hectares.
- 3) The area of a rhombus is 63m^2 . its perimeter is 36 m . Find its altitude.
- 4) The area of a rectangular plot is 440 m^2 and its length is 22m . Find its perimeter.
- 5) Find the area of a quadrilateral whose one diagonal measures 12 cm and the altitude to the diagonal from the opposite vertices are 7.5 cm and 6.2cm respectively.

Group B

- 1) A room measures 12m x 9 m . The floor of the room is to be covered by tiles measuring 30 cm by 15 cm. how many tiles are needed?
- 2) A garden is 80 m long and 65m broad. A path 5 m wide is to be built outside all around it along its border find the area of the path.
- 3) The base and the corresponding altitude of a parallelogram are 10 cm and 14 cm respectively. If the other altitude is 10.5 cm, find the lengths of the other parallel side.
- 4) The ratio of two adjacent sides of a parallelogram is 3:4. Its perimeter is 140cm find the area if altitude corresponding to the longer side is 15 cm
- 5) Find the area of a right triangle if its hypotenuse is 13 cm and one side is 5 cm.

THE INDIAN HIGH SCHOOL, DUBAI
MODEL QUESTION PAPER 2009-2010
SECOND SEMESTER EXAM
MATHEMATICS PAPER –II

Grade 7**Max.Marks 35****PART A**

Choose the correct answer from the given alternatives

(1/2 x 20 = 10 marks)

1. Which one of the following is not a Pythagorean triplet ?
a) (8,15,17) b) (5,6,8) c) (9,12,15) d) (6,8,10)
2. Which one of the following is not a congruence condition?
a) S.A.S b) A.S.A c) A.S.S d) R.H.S
3. If the measure of one angle of a linear pair is 4 times the other, then the angles are
a) $36^\circ, 144^\circ$ b) $10^\circ, 80^\circ$ c) $72^\circ, 108^\circ$ d) $160^\circ, 20^\circ$
4. The area of a square park whose perimeter is 40m is
a) 10m^2 b) 100m^2 c) 1000m^2 d) 10000m^2
5. The circumference of a circle of diameter 7 cm is
a) 44cm b) 33cm c) 22cm d) 11cm
6. Which one of the following cannot be the sides of a triangle ?
a) (2,3,4) b) (5,7,9) c) (3,6,5) d) (2,4,6)
7. The number of measure required to construct a scalene triangle is
a) 1 b) 2 c) 3 d) 4
8. A pair of corresponding angles are
a) equal b) complementary c) supplementary d) none of these
9. If the perimeter and area of a square are numerically equal, then its side will be
a) 1 b) 2 c) 3 d) 4
10. The ratio of radii of two circles is 1 : 2. The ratio of their areas is
a) 1 : 2 b) 2 : 4 c) 1 : 4 d) 2 : 1
11. If 5 and 12 are the legs of a right triangle then its hypotenuse is
a) 7 b) 17 c) 13 d) 60
12. Two circles are congruent if they have the same
a) centre b) chord c) radius d) none of these
13. An exterior angle of a triangle is 84° , then its adjacent interior angle is
a) 84° b) 42° c) 180° d) 96°
14. The complement of 55° is
a) 35° b) 45° c) 55° d) 90°
15. 5cm^2 is equal to
a) 5mm^2 b) 50mm^2 c) 500mm^2 d) none of these
16. the length of a rectangle is

- a) $A - b$ b) $P - b$ c) $2P - b$ d) $\frac{P}{2} - 1$
17. In a circle
 a) $d = 2r$ b) $d = \frac{1}{2} r$ c) $r = d$ d) none
 of these
18. Area of a quadrant of a circle is
 a) $4 \pi r^2$ b) $\frac{1}{4} \pi r^2$ c) $2 \pi r^2$ d) $\frac{1}{2} \pi r^2$
19. Area between two concentric circles is
 a) $\pi(R^2 - r^2)$ b) $\pi(R^2 + r^2)$ c) $\pi(R^2 - r^2)$ d) $\pi(R^2 + r^2)$
20. The altitude of an equilateral triangle of side a units is
 a) $2a$ b) $\sqrt{3} a$ c) $\frac{2}{\sqrt{3}} a$ d) $\frac{\sqrt{3}}{2} a$

PART B

Questions 1 to 5 carries 1 mark each

Questions 6 to 10 carries 2 marks each

Questions 11 to 12 carries 3 marks each

Questions 13 carries 4 marks

1. State R.H.S Congruence condition.
2. The area of a rectangular plot is 630 m^2 . If its breadth is 15 m, find its length.
3. Find the radius of a circle if the circumference is 44 cm.
4. Find the area of an equilateral triangle whose one side is 12 cm.
5. The ratio of the radii of two wheels is 3 : 4. What is the ratio of their diameters ?
6. A 10 m ladder is placed against a wall at a distance 8m from its base. How high up on the wall is the upper end of the ladder?
7. Construct $\triangle LMN$ in which $LN = 7 \text{ cm}$, $NM = 5.5 \text{ cm}$ and $LM = 6.5 \text{ cm}$
8. The vertical angle of an isosceles triangle is 108° . Find the measures of the base angles.
9. Find the area in hectares if the length and breadth of a field are 240 m and 90 m.
10. Find the radius of a circle whose area is 12474 cm^2
11. AX is the bisector of $\angle BAC$. P is any point on AX . Prove that the perpendiculars from P to AB and AC are equal.
12. A plot is 70m by 50m. Two cross paths of each 3m wide are constructed such that each path is parallel to one of the sides of the rectangle. Find the total area of the paths.
13. Find the area of a circle whose circumference is the same as the perimeter of a square of side 11cm.

THE INDIAN HIGH SCHOOL, DUBAI

**MODEL QUESTION PAPER 2009 - 2010
SECOND SEMESTER PAPER I**

Sub: Mathematics

PART A

1. $(8^0 - (1/4)^0) \times (-2/3)^0 =$
a. $-1/18$ b. $-8/27$ c. 0 d. $-32/27$
2. The rate of interest by which a given amount of money is doubled in four years is:
a. 25% b. 30% c. 20% d. 10%
3. When 50 is subtracted from 50% of a number the result is 50. The number is:
a. 150 b. 400 c. 200 d. 300
4. $A : B = 7 : 9$ and $B : C = 6 : 7$ then $A : C$ is:
a. $2 : 3$ b. $3 : 2$ c. $1 : 3$ d. $2 : 7$
5. 0.00004×10^6 is:
a. Greater than 1 b. Less than 1 c. Between 0 & 1 d. Less than 0
6. The ratio of the C.P. and S.P. of an article is 5 : 6. The profit percentage is:
a. 20% b. 15% c. 12.5% d. 10%
7. If $X/20 = 4/5$ then $X =$
a. 16 b. 20 c. 25 d. 15
8. $1/4 X - 7/8 = 1/8$ the value of X is:
a. 4 b. $1/4$ c. 2 d. -2
9. If $3/4^{\text{th}}$ of a number is 60, then half of that number is:
a. 30 b. 40 c. 80 d. 60
10. Which word would you choose to describe the event "The frog will turn into a prince"
a. Impossible b. Unlikely c. Likely d. Certain
11. A box contains 4 different packs of chocolates. Shruti takes out a pack without looking. What is the chance that she picks "Kitkat"
a. $2/3$ b. $1/4$ c. $1/2$ d. $2/4$
12. The sides of a triangle are in the ratio 2 : 3 : 4 and its perimeter is 180cm. The length (in cm) of the smallest side is:
a. 60cm b. 40cm c. 100cm d. 50cm
13. If $6^{6X} + 6 = 1$ then X equals:
a. 0 b. -1 c. 1 d. $-4/5$
14. The missing term in the proportion $12 : 16 :: ? : 20$ is
a. 26 b. 15 c. 14 d. 11
15. 14.5% as a decimal is:
a. 14.5 b. 0.145 c. 1.45 d. 0.92
16. The value of $(-8)^4 \times (-8)^3$ is:
a. $(-8)^{12}$ b. 64^{12} c. $(-8)^7$ d. 8^{12}
17. If the difference between three times and the seven times, a number is 36, the number is:
a. 6 b. 9 c. 12 d. 18

18. If $X = Y$ then $X/2 =$
 a. $2Y$ b. $Y - X$ c. $Y/2$ d. XY
19. What is the probability of the spinner landing at an odd number
 a. $1/2$ b. $1/3$ c. $1/6$ d. $2/3$
20. A coin is flipped to decide which team starts the game. What is the probability that your team will start?
 a. $1/4$ b. $1/2$ c. $2/2$ d. $1/3$

Part B

Questions 1 to 5 carries 1 mark each

Questions 6 to 10 carries 2 marks each

Questions 11 to 12 carries 3 marks each

Questions 13 carries 4 marks

1. Express with a single exponent $\{(-7)^5 \times (-7^4)\}^2$.
2. Find the value of $(9^0 - 7^0) \times (9 + 7)$.
3. Find the value of X :
 $X : 5 :: 28 : 35$
4. A bag has one blue and 9 green marbles in it what is the probability of drawing a blue marble?
5. An ordinary die is rolled. What is probability that the no. of dots on its upper face is less than 3?
6. Find the value of X :
 If $(-6)^5 \times (-6)^{3-X} = (-6)^3$.
7. An aero plane flies 3000 km in 5 hrs. How much distance will be covered if it travels for 7 hrs?
8. Solve :
 $14 + 2n - 6 + 8n = 4n - 21 + n + 34$.
9. Simplify
 $3^8 \times a^6 / 9^3 \times a^3$.
10. Sita save 20% of his monthly income. If she saves Rs 5100 per month, what is her monthly income?
11. A gift pack of chips contains 2 cheese and onion, 2 plain salted, 3 masala munch and 1 pudina. Tanya takes out a pack of chips without looking. What is the chance that she picks?
 a.) Masala b.) Pudina.
12. At what rate of simple interest will Rs 350 amounts to Rs 455 in 6 yrs ?
13. One no. is twice a second no. Five more than the second no. is the same as the first no. less than 3. Find the no's. ?

OR

The total number of students in a school is 1260. If the no. of girls is 52 more than that of the boys, find the no. of boys in the school. Also find the no. of girls.

HIGHER ORDER THINKING QUESTIONS

Grade7

MATHEMATICS

Linear equations

Solve the following equations

1. $\frac{m}{4} - 4.6 = -3.1$
2. $\frac{z}{2} + \frac{2z}{5} - \frac{3z}{4} = 0.25$
3. $2 - \frac{3x}{2} = \frac{5}{2}(1 - x)$
4. One no. is twice a second no. Five more than the second no. is the same as the first no. and less than 3. Find the no's. ?
5. If 2 is subtracted from the number and this difference is tripled, the result is 4 more than the number. Find the number
6. John has Rs 50 more than what Smith has. If Smith takes Rs 35 from John, the money he has now is twice of what is left with John. Find how much money did each have originally
7. Lakshmi is a cashier in a bank. She has currency notes of denomination RS100, RS50, Rs10 respectively. The ratio of the number of these notes is 2:3:5. The total cash with Lakshmi is RS4,00,000. How many notes of each denomination does she have?
8. Ravi's father is 26 years younger than Ravi's grandfather and 29 years older than Ravi. The sum of the ages of all the three is 135 years. What is the age of each of them?
9. Three consecutive integers are such that when they are taken in increasing order and multiplied by 2, 3 and 4 respectively, they add up to 74. Find these numbers?
10. People of a village planted a total of 102 trees in the village garden. Some of the trees were fruit trees. The number of non fruit trees were two more than three times the number of fruit trees. What was the number of fruit trees planted?

Comparing Quantities

11. Fifteen post-cards cost Rs.2.25. What will be the cost of 36 post-cards? How many post-cards can we buy for Rs.45?
12. Lima earned Rs.40,000 and paid Rs.5000 as income tax. Find the ratio?
13. Out of 1200 students of a school, 240 students went for a picnic on a particular day. What percent of the students did not go for the picnic on that day?
14. An office opens at 9 a.m. and closes at 5 p.m. with a lunch interval of 30 minutes. What is the ratio of lunch interval to the total period in office?

15. Raji scored 553 marks out of 700 and Radha scored 486 marks out of 600 in science. Whose performance is better?
16. Express the following in the language of ratio: .In a school, five teachers are assigned to teach four classes
17. A car travels 165km in 3 hours. How far will it travel in 7 hours?
18. Divide 117 pencils among three children in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$
19. At a particular time , the shadow of a pole and tower are respectively 25m and 35m.If the height of the tower is 58m,find the height of the pole
20. At a party , 8 bottles of soft drink are served for every batch of 5 children. How many bottles will be served if 40 children were present in a party?

Percentage and its applications

21. Rahul purchased two buffaloes for Rs.18000 and Rs15000 respectively. She sold them at a loss of 15% and at a gain of 19% respectively. Find the selling price of each of the buffaloes. Also find the overall gain or loss percent in the transaction
22. Veda deposited Rs.7200 in a finance company which pays 15% interest per year. Find the amount she is expected to get after $4\frac{1}{2}$ years
23. Jamal bought 400 eggs at Rs.8.40 a dozen. At what price per hundred must he sell them so as to earn a profit of 15%?
24. Sahils's monthly salary was Rs.8500. Her salary is increased by 5%. How much increase has she got? Also, find her present salary
25. 55% of the population of a town is male. If the total population of the town is 128200, find the female population of the town.
26. The excise duty on a certain item has been reduced to Rs3480 from Rs5220. Find the percentage reduction in the excise duty for that item
27. A farmer borrowed Rs.24000 at 12% per annum from another farmer. At the end of 2years he cleared the account of paying Rs.12000 and a cow. Find the cost of the cow
28. Betty bought an article for Rs.1215 and spent Rs.35 on its transportation. At what price should he sell the article to have a gain of 16%?
29. A man sold two articles at Rs 25920 each. These were sold at 8% gain and 4% loss respectively. Find the loss or gain percent in the whole transaction.
30. If a man were to sell his hand-cart for Rs.720, he would lose 25%. What must he sell it for to gain 25%?

Pythagoras theorem

31. Which of the following is a Pythagorean triplet?
a) (12,5,13) b) (10,25,32) c) (7,9,11) d) (5,6,8)
32. Can 3cm, 4cm, 9cm represent the sides of a triangle?
33. Two buildings 30m and 15m high stand upright on the ground.If they are 36m apart ,find the distance between their tops.
34. A pole when set against the wall of a house just reaches the window at a height of 24 dm. If the lower end of the pole is 7 dm from base of the wall, what is the length of the pole ?

35. A staircase 50m long is placed against a wall in such a way that the foot of the staircase is 48m away from the wall. Find how high the top of the staircase reaches the on the wall.
36. A ship leaves a port and travels 12km due east. Then it turns and travels 9km due north. How far is the from the port
37. A tree broke at point and did not separate. Their tops touch the ground at distance of 12 dm from its base. If the point where it broke be at a height of 16 dm from the ground, what is the total height of the tree before it broke?
38. The sides of a triangle 2.5 dm, 6 dm and 6.5 dm. Show that it is a right triangle.
39. Find the perimeter of a rectangle whose length is 35cm and diagonal is 37cm .
40. A pole when set against the wall of a house just reaches the window at a height of 24 dm. If the lower end of the pole is 7 dm from base of the wall, what is the length of the pole

Symmetry

41. Draw the line of symmetry of the following shapes

Equilateral triangle (ii) Semicircle

42. Are these figures symmetrical? Draw lines of symmetry to those that are given below.

a.



b.



c.



43. How many lines of symmetry do the following have:

A scalene triangle

A rhombus

A parallelogram

A right triangle with equal legs

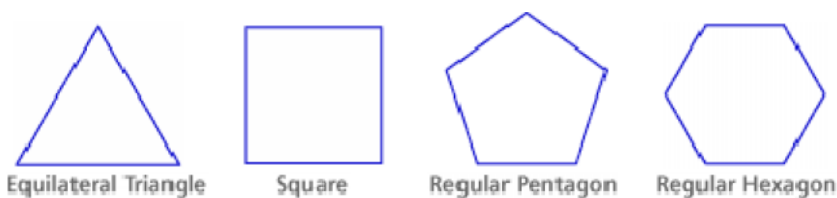
A semi circle

44. Each of these figures has rotational symmetry. What is the order of rotational symmetry and angle of rotation in each case ?



45. Draw a hexagon with only 2 lines of symmetry and rotational symmetry of order 2
46. List all letters of English alphabet which have (i)vertical line of symmetry, horizontal line of symmetry, no lines of symmetry

47. After rotating by 60 degree about a centre ,a figure looks exactly the same as its original position .At what other angles will this happen for the figure?
48. If a figure has two more lines of symmetry ,should it have rotational symmetry of order more than 17?
49. On a squared paper sketch a quadrilateral with a horizontal line of symmetry but no vertical line of symmetry.
50. Do the regular polygons have rotation symmetry? For each polygon, what are the center and angle of rotation?

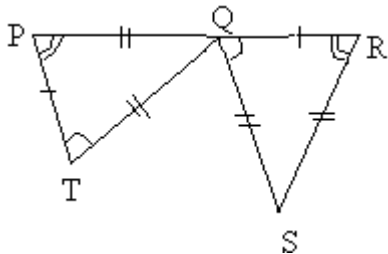


Practical Geometry

51. Draw a line l . Draw a perpendicular to l at any point on l . On this perpendicular choose apoint X ,4cm away from l . Through X, draw a line m parallel to l .
52. Construct a right angled triangle PQR right angled at P such that PQ=6cm and PR=8cm.Measure QR.
53. Draw a triangle XYZ where YZ=4cm, $\angle N=45^\circ$ and $\angle Z=40^\circ$. Find the length of XZ. Also find the longest side of the triangle and the angle opposite to it.
54. Draw a triangle with angles whose measures are 30° , 50° and 100° . Can you draw another triangle with the same measure of angles? How many such triangles can you draw?
55. Draw a right triangle with hypotenuse of length 5cm and one side of length 4cm
56. Examine whether you can construct LMN such that LM=5cm, $\angle L=85^\circ$, $\angle N=115^\circ$.Justify your answer.
57. In XYZ, XY =6cm, $\angle ZXY = 30^\circ$. What additional information is required to construct XYZ ?
58. In LMN, $\angle L=60^\circ$, $\angle N=120^\circ$, LM = 5cm. It is impossible to construct LMN. Why?
59. . In an isosceles triangle each base angle is 30° greater than the vertical angle. Find them measure of each and draw the triangle?
60. A line segment PQ is taken as 6cm.AtQ draw $QR \perp PQ$ and cut off QR=4cm.Complete the rectangle PQRS by drawing RS \perp PQ and join PS. What do you observe?

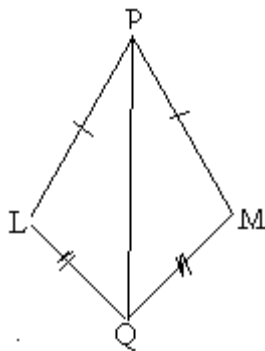
Congruence of triangles

61. Draw two triangles of equal area in a squared sheet. Are perimeters equal? Give reason
62. Complete the congruence statement $QRS \cong \underline{\hspace{2cm}}$

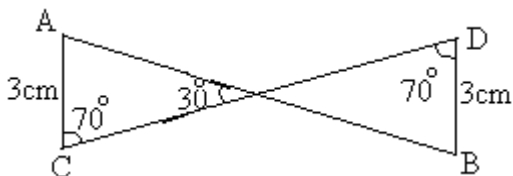


63. In $\triangle ABC$ and $\triangle XYZ$, $\angle B = \angle X = 90^\circ$ and $BC = XZ$. What additional information is required to make $\triangle ABC \cong \triangle XYZ$ by RHS congruence condition

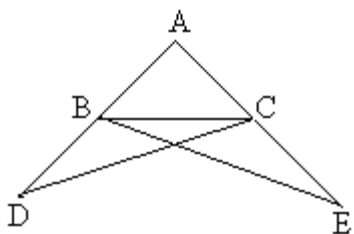
64. In the following figure $PL = PM$, and $LQ = MQ$. Is $\triangle LPQ \cong \triangle PMQ$



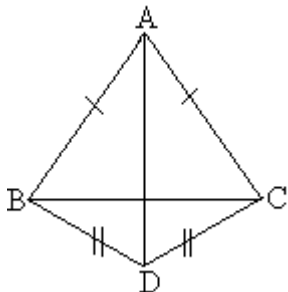
65. Use ASA congruence rule and conclude that $\triangle AOC \cong \triangle BOD$



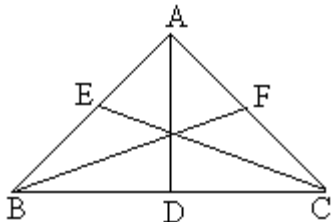
66. In the given figure, $\triangle ABC$ is an isosceles triangle in which $AB = AC$. If AB and AC are produced to D and E respectively such that $BD = CE$. Prove that $BE = CD$.



67. In the given figure $\triangle ABC$ is an isosceles triangle in which $AB = AC$. Also D is a point such that $BD = CD$. Prove that AD bisects $\angle A$ and $\angle D$.



68. AD, BE and CF, the altitudes of $\triangle ABC$ are equal.



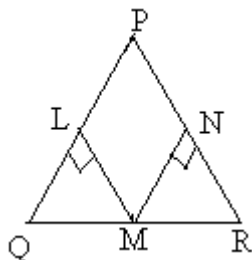
Prove that $\triangle ABC$ is an equilateral triangle.

69. $\triangle XYZ$ is isosceles with $XY=XZ$. Also, XW perpendicular to YZ meeting YZ in W . Are the two triangles XYW and XZW congruent. State in symbolic form.

Which congruence condition do you use? Which side of $\triangle XWZ$ equal to YW ?

Which angle of $\triangle XWZ$ equal to $\angle Y$?

70. In the given figure $LM=LN$, $QM=MR$, $ML \perp PQ$ and $MN \perp PR$. Prove that $PQ=PR$.

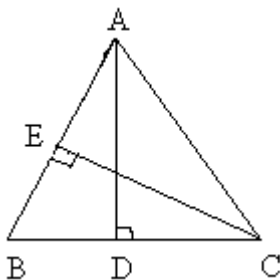


PERIMETER AND AREA

71. The length of a rectangle is halved and its breadth is tripled the percentage change in its area. A floor measuring 2m by 1.5m is to be covered with square tiles, each side measuring 25 cm square how many tiles will be needed ?

72. A 2m path is constructed outside the four sides of a rectangular field of dimension 93m by 79 m. Find the area of the path.

73. Triangle ABC is isosceles with $AB=AC=7.5\text{cm}$ and $BC=9\text{cm}$. The height AD from A to BC is 6 cm. Find the area of triangle ABC. What will be the height from C to AB ie, CE?



74. The floral design on the floor of a building consists of 2800 tiles .Each tile is in the shape of a parallelogram of altitude 3cm and base 5cm .Find the cost of polishing the design at the rate of Rs 25 per m^2 .
75. One side of a parallelogram is 20cm and the corresponding altitude is 12 cm. Find the length of the adjacent side of the parallelogram if the height of the altitude to the adjacent side is 10cm
76. A door of length 2m and breadth 1m is fitted in a wall. The length of the wall is 4.5m and breadth is 3.6m .Find the cost of white washing the wall ,if the rate of white washing the wall is Rs 20 per m^2
77. Two cross roads, each of width 10m, cut at right angles through the centre of a rectangular park of the length 700m and the breadth 300m and parallel to its sides. Find the area of the roads. Also find the area of park excluding the roads
78. The length and breadth of a rectangular park are in the ratio 8:5. A path 1.5m wide, running all around the outside of the park has an area of 594 m^2 .Find the dimensions of the park.
79. Calculate the area of a right angled triangle in square meters in which two sides containing right angle measure 3.2m and 150cm.
80. Karishma bought a bed sheet 2.25m long and 1.75m wide. She wanted to put lace around it. How many meters of lace would she have to buy? Also find how much the lace would cost if it costs Rs14.50 per meter?

Circumference and area of a circle

81. A circular flower garden has an area of 314 m^2 ,a sprinkler at the centre of the garden can cover an area that has a radius of 11 m .Will the sprinkler water the entire garden?
82. The minute hand of a circular clock is 13.3 cm long . What is The distance travel by the tip of the hand in one hour
83. A rectangular sheet of acrylic is 36cm by 24cm. From it 64 circular buttons ,each of diameter 3 cm have been cut out .Find the area of the remaining sheet.
84. Semi circular lawns are attached to both edges along the breadth of a rectangular lawn measuring 56m by 35m. Find the total area enclosed.
85. A circular pond has a 90m wide footpath along its edge. A man walks around the outer edge of the footpath with 66cm long steps. In 400 steps he makes a full round. What is the radius of

- the pond ?
86. Pragya wrapped a cord around a circular pipe of radius 4 cm and cut off the length require of the cord .Then she wrapped it around a square box of side 4cm. Did she have any cord left?
 87. The diameter of a circular park is 66m. On its outside there is a 4m wide path, running around it Find the cost of turfing the path at Rs2.50 per sq.m.
 88. A piece of wire is bent in the shape of an equilateral triangle of each side is 6.6m.It is rebent to form a circular ring . What is the diameter of the ring?
(Take $\pi = 3.14$)
 89. The diameter of a wheel of a cycle is 70cm. It moves slowly along the road. The distance covered after 24 complete revolutions is
 90. A piece of wire is in the form of a rectangle with dimensions 12m by 10m is bent to form a circle.What is the diameter of the circle ?

Probability

91. A bag has 4 red balls and two yellow balls. A ball is drawn from the bag with out looking in to the bag. What is the probability of getting a red ball? Is it more or less than getting a yellow ball?
92. When a die is thrown list the outcomes of an event of getting (i) a number greater than 5 (ii)a number not greater than5
93. Find the probability of the events of getting (i)a prime number (ii)not a prime number when a die is thrown?
94. A box contains 4 different packs of chocolates. Shruti takes out a pack without looking. What is the chance that she picks “Kitkat”
95. What is the probability of the spinner landing at an odd number
96. An ordinary die is rolled. What is probability that the no. of dots on its upper face is less than 3?
97. From an ordinary pack of 52 cards ,a card is taken .What is the probability that it is a face card?
98. If you have a spinning wheel with three green sectors,1 blue sector, and one red sector, what is the probability of getting a non blue sector? what is the probability of getting a green sector?
99. There are six marbles in a box with numbers from 1 to 6 marked on each of them What is the probability of drawing marble with number5?
100. It is known that a box of 600 electric bulbs contains 12 defective bulbs. One bulb is taken out at random from this box. What is the probability that it is a non defective bulb?

