

**SAMAGRA SHIKSHA, KERALA  
ANNUAL EVALUATION 2021-22  
MATHEMATICS**

Time : 1½ Hours  
Total Score : 40

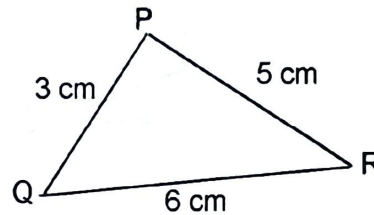
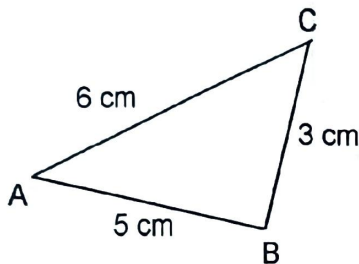
Standard: VIII

**Instructions**

- Read the instructions before answering the questions
- Give explanations wherever necessary
- First 15 minutes is cool-off time

Write any 4 questions from 1 to 6. Each question carries 2 scores. (4 x 2 = 8)

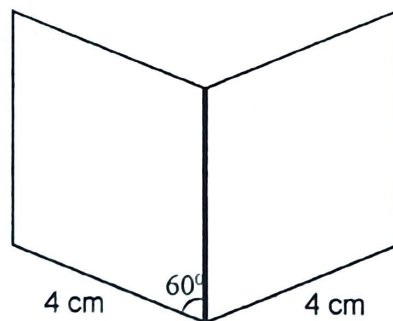
1. Write two pairs of equal angles in the figures given below.



2. (a) What is the sum of angles of a 12 sided polygon?  
(b) What is the sum of angles of a polygon with one side more?
3. 4 added to 4 times a number is 40.  
(a) What is 4 times the number?  
(b) Find the number.
4. (a)  $-3 + 2 = \dots\dots\dots$   
(b)  $7 - (-3) = \dots\dots\dots$
5. (a)  $(x + y)^2 = x^2 + \dots\dots\dots + y^2$   
(b)  $21^2 = 400 + \dots\dots\dots + 1$
6. (a) The ratio of acid and water in a liquid is 3:2. If the liquid contains 6 litres of water, find the measure of the acid.  
(b) How many litres of liquid is there in total?

**Answer any 4 questions from 7 to 12. Each question carries 3 scores. (4 x 3 = 12)**

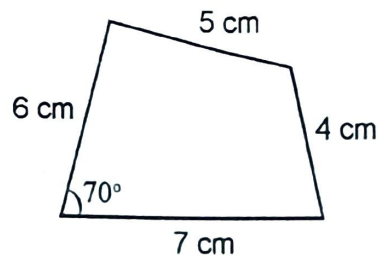
7. The length of a rectangle is 4 cm more than its breadth. Perimeter of the rectangle is 32 centimetres.
- (a) If the breadth is  $x$ , then what is its length?
- (b) Find the length and breadth of the rectangle.
8. Draw a circle of radius 3.25 centimetres.
9. The angles of a triangle are in the ratio 2 : 3 : 5. How much is each angle?
10. The figure shown below is drawn using 2 equal rhombuses. Draw the figure as per the given measures.



11. (a)  $3 \times (-2) = \dots\dots\dots$
- (b)  $(-4) \times (-5) = \dots\dots\dots$
- (c)  $(-6) \div (-3) = \dots\dots\dots$
12. (a)  $x^2 - y^2 = (x + y)(\dots\dots\dots)$
- (b)  $64^2 - 36^2 = 100 \times \dots\dots\dots$
- (c)  $101^2 - 100^2 = \dots\dots\dots$

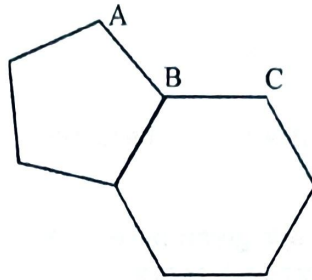
**Answer any 4 questions from 13 to 18. Each question carries 4 scores. (4 x 4 = 16)**

13. Draw the quadrilateral with the given measures as shown below.



14. Shaji deposited 20000 rupees in a bank which pays 5% interest compounded annually. After 2 years he withdrew 10000 rupees. How much amount would be in his account at the end of third year?

15. A regular pentagon and a regular hexagon are joined as shown in the figure.



- What is the measure of an angle of regular pentagon?
- What is the measure of an angle of regular hexagon?
- Find the measure of  $\angle ABC$ .

16. The scores of 30 students in a test are given below.

21, 32, 5, 11, 35, 25, 33, 13, 26, 23  
 39, 44, 25, 37, 20, 7, 12, 33, 40, 9  
 42, 46, 16, 28, 27, 47, 37, 18, 49, 26

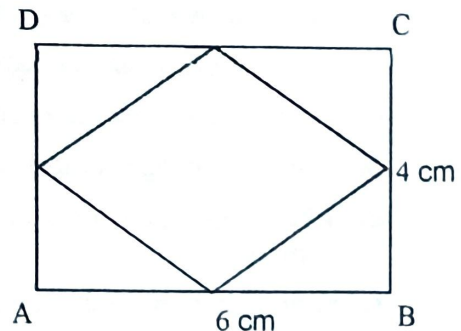
(a) Prepare a frequency table as shown below.

Score	Tally	Number of Students
0 - 10		
10 - 20		
.....		
.....		
.....		
Total		

(b) How many students scored more than 30?

17. In the given figure a rhombus is formed by joining the midpoints of the sides of the rectangle.  $AB = 6$  centimetres,  $BC = 4$  centimetres.

- What is the area of the rectangle?
- Find the area of the rhombus.
- Find the area of rhombus with diagonals 12 centimetres and 8 centimetres.



18.  $4xy = (x + y)^2 - (x - y)^2$

(a)  $4 \times x \times 1 = (x + 1)^2 - \dots\dots\dots$

(b)  $20 = 4 \times 5 \times 1 = \dots\dots\dots - \dots\dots\dots$

(c) Write 40 as the difference of two perfect squares.

19. Read the mathematical concept given below and answer any four questions that follow. Each question carries 1 score.

(4 x 1 = 4)

$1 = 1$   
 $1 + 2 = 3$   
 $1 + 2 + 3 = 6$   
.....  
.....

The numbers which can be expressed as the sum of consecutive natural numbers starting from 1 are known as triangular numbers.

$1^2 = 1$   
 $2^2 = 4$   
 $3^2 = 9$   
.....  
.....

The squares of natural numbers are known as square numbers.

That is,

1, 3, 6, 10, ..... are triangular numbers.

1, 4, 9, ..... are square numbers.

- (a) Which is the fourth triangular number?
- (b) How many first natural numbers are added to get 5th triangular number?
- (c) Which is the 6th square number?
- (d) Find the two digit number which is both triangular and square number.
- (e) What is the difference between the 6th square number and the 6th triangular number?
- (f) Write a square number between 70 and 90.