First Terminal Evaluation - 2018
MATHEMATICS - VIII

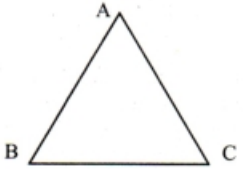
Time: 1½ Hours **Score: 40**

Instructions

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

Answer any three from questions 1 to 4. Each carries 2 scores. **(3 × 2 = 6)**

1. In the figure $\angle A = 60^0$, AB = AC = 7.2 cm



   a) What is the measure of $\angle B$?

   b) Find length of BC.

2. 7 is added to 5 times of a number gives 37.

   a) How much is 5 times of that number?

   b) If 7 is subtracted from 5 times of the number, what is the answer?

3. Sums of external angles and internal angles of a polygon are equal.

   a) How many sides does that polygon have?

   b) What is the sum of its internal angles?

4. One angle of an isosceles triangle is 100^0. Find measures of other two angles.

Answer any four from questions 5 to 10. Each carries 3 scores. **(4 × 3 = 12)**

5. Measure of one external angle of a regular polygon is greater than the measure of one internal angle.

   a) Which is that regular polygon?

   b) What is the measure of one external angle?

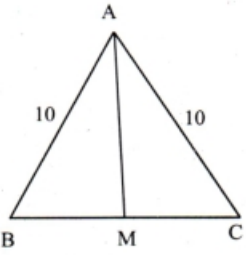
   c) What is the measure of one internal angle?

6. $7^2 + 1^2 =$ .....

   $(7 + 1)^2 =$ .....

   What should be added to $7^2 + 1^2$ to get $(7 + 1)^2$?

7. In triangle ABC, AB = AC = 10 cm.
   M is the midpoint of BC, BM = 6 cm



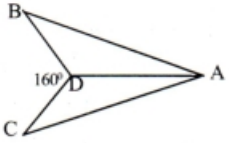
   a) Find the length of AM.

   b) What is the area of triangle ABM ?

   c) Find area of triangle ABC.

8. The length of a rectagnle is 1 cm more than two times its breadth. Its perimeter is 80 cm. What is its length?

9. In the figure AB = AC, BD = DC, $\angle C = 40^0$
   $\angle BDC = 160^\circ$



   Write the measures of all angles of triangle ABD.

10. One external angle of a regular polygon is 18^0 .

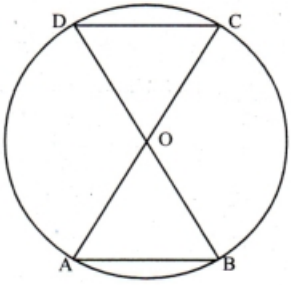
    a) What is the sum of its external angles?

    b) How many sides does it have?

    c) What is the sum of its internal angles?

Answer any four from questions 11 to 16. Each carries 4 scores. **(4 × 4 = 16)**

11. In the figure O is the centre of the circle.



    a) If AB = 7cm. What is the length of DC?
    Justify your answer.

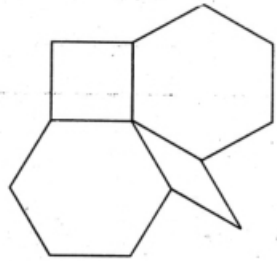
    b) If $\angle A = 72^\circ$, what is the mesure of $\angle COD$?

12. a) Draw a line of length 9 cm and divide it into four equal parts.

    b) Draw a square of perimeter 9 cm.

13. a) Name all the different regular polygons in the figure.

b) Write measures of angles of the rhombus?



14. Sum of the internal angles of a polygon is 540°.

a) How many sides does it have?

b) If the angles are consecutive natural numbers; What is the measure of the smallest angle?

15. In the figure, the vertices of the regular polygon are points on a circle. Radius of the circle is 4 cm.

a) What is the length of one side of the polygon?

b) Draw a regular hexagon of perimeter 18 cm.

16. The price of a pen is x rupees more than the price of a pencil. The price of a book is 8 rupees more that the price of a pen. Total price of 12 pens and 12 pencils is equal to the total price of 9 books. Find price of a pencil, pen and a book.

Read the mathematical concept explained below and answer the questions that follow.

(6 × 1 = 6)

17. $2^2 - 1^2 = 4 - 1 = 3 = 2 + 1$

$3^2 - 2^2 = 9 - 4 = 5 = 3 + 2$

$4^2 - 3^2 = 16 - 9 = 7 = 4 + 3$

$5^2 - 4^2 = 25 - 16 = 9 = 5 + 4$

.....

Observe the given number pattern. We can see that the difference of squares of two consecutive natural numbers is equal to the sum of the numbers. And they are all odd numbers. In other words, all odd numbers can be written as the difference of squares of two consecutive natural numbers

Now let us see the difference of squares of two consecutive even numbers.

$4^2 - 2^2 = 16 - 4 = 12$. Here we don't get the answer as the sum of the numbers. But we can see some other interesting facts $4 + 2 = 6$ and $6 \times 2 = 12$. Lets see whether this is true for other even numbers also.

$6^2 - 4^2 = 36 - 16 = 20 = (6 + 4) \times 2$

$8^2 - 6^2 = 64 - 36 = 28 = (8 + 6) \times 2$

a) Write 11 as the sum of two consecutive natural numbers.

b) Write 11 as the difference of two perfect squares.

c) $51^2 - 50^2$ = ...

d) $10^2 - 8^2$ = ...

e) Write 36 as the difference of two perfect squares.

f) Write 100 as the sum of two perfect squares.

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