

Time : 1½ Hours

Score : 40

Instructions

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

Answer any 4 Questions from 1 to 5. Each question carries 2 scores. (4 x 2 = 8)

1 In the figure, O is the centre of the circle. $\angle A = 30^\circ$

a) $\angle B = \dots\dots\dots$

b) $\angle AOB = \dots\dots\dots$



2 a) Which number is to be subtracted from $10^2 + 2^2$ to get $(10 - 2)^2$?

b) What is to be subtracted from $a^2 + b^2$ to get $(a - b)^2$?

3 See the advertisement of a financial establishment.

Monthly interest for 1000 rupees is 20 rupees only

a) What is the interest of 100 rupees for one month?

b) What is the rate of interest?

4 a) What is the measure of one outer angle of a 12 sided regular polygon?

b) What is the measure of one inner angle?

5 The number of boys and girls in a class are in the ratio 3 : 5.

If the number of boys is 12, then

a) What is the number of girls in the class?

b) Find the total number of students in the class.

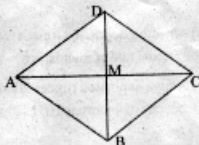
Answer any 4 Questions from 6 to 11. Each question carries 3 scores. (4 x 3 = 12)

6 In the figure, ABCD is a rhombus.

$AC = 16$ cm, $AD = 10$ cm.

a) What is the length of AM?

b) Find the length of BD.

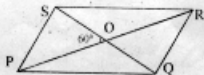


- 7 The length of a rectangle is 4 cm more than its breadth. If the perimeter is 84 cm.
- Length + Breadth =
 - Find the length and breadth of the rectangle.
- 8 Joseph deposited Rs 15000/- in a bank at the rate of 10% simple interest. Rafeek deposited Rs 15000/- in another bank at the rate of 10% compound interest.
- After 2 years, how much amount would Joseph get back?
 - After 2 years, how much amount would Rafeek get back?
- 9
- $(10 + 2)^2 - (10 - 2)^2 = \dots\dots\dots$
 - $(x + y)^2 - (x - y)^2 = \dots\dots\dots$
 - $(10 + 0.6)^2 - (10 - 0.6)^2 = \dots\dots\dots$

- 10 In the figure, PQRS is a parallelogram.

The diagonals intersect at the point O.

Also $\angle POS = 60^\circ$, PR = 8 cm, QS = 6 cm

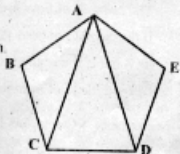


- Length of OP =
 - Draw the parallelogram PQRS
- 11 The price of a pen and a book are in the ratio 3:5. The price of a book is 12 rupees more than the price of a pen.
- If the price of a pen is taken as $3x$, how can we write the price of a book?
 - Find the price of a pen and that of a book.

Answer any 4 Questions from 12 to 17. Each question carries 4 scores. (4 x 4=16)

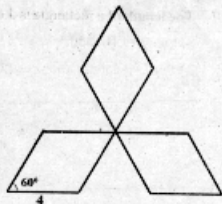
- 12 In the figure, ABCDE is a regular pentagon.

- Write the measure of one angle of a regular pentagon.
- Find the measures of all angles of triangle ACD.



- 13
- Amrutha deposited rupees 20000 in a bank which compounds interest half yearly. The annual rate of interest is 8%. How much amount would she get back after one year?
 - Najiya deposited rupees 20000 in a bank which compounds interest quarterly. The annual rate of interest is 16%. How much amount would Najiya get back after six months?

- 14 Three equal rhombuses with one side 4 cm and one angle 60° are put together as in the figure. Draw the figure with given measurements.



15 a) $x^2 - y^2 = (x - y)(\dots + \dots)$

b) $(3a + b)(3a - b) = \dots\dots\dots$

c) Find $(9.8)^2 - (0.2)^2$

- 16 In the quadrilateral ABCD, $AB = 8$ cm, $BC = 5$ cm, $AC = 6$ cm, $CD = 4$ cm, $AD = 5$ cm. Draw the quadrilateral.

- 17 A plastic bottle manufacturing company decided to reduce its production by 10% in each year. If the current production is 4 lakhs, what would be the production after two years?

Read the given concept carefully and write answers to the following questions. Each question carries one score (4 x 1 = 4)

- 18 Look at the pattern

$1^2 + (4 \times 2) = 3^2$

$2^2 + (4 \times 3) = 4^2$

$3^2 + (4 \times 4) = 5^2$

.....

(a) Write the next line.

(b) $5^2 + 4 \times \dots\dots = 7^2$

(c) $10^2 + 4 \times 11 = \dots\dots\dots$

(d) $n^2 + 4(n + 1) = \dots\dots\dots$

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