

PVG's  
**Muktangan English School & Jr. College, Pune - 9**  
**Summative Written Test - I (2024 - 25)**  
**Standard - VIII**

**Subject - Mathematics**  
**Date - 15.10.2024**

**Marks - 50**  
**Time - 8.00 am to 10.00 am**

**Q.1 A) Fill in the blanks by selecting correct alternative and rewrite the sentences. [ 5 ]**

1) 25% of 200 = \_\_\_\_\_ .

- a) 50                      b) 100                      c) 20

2)  $a^2 + 2ab + b^2 =$

- a)  $(a+b)^3$                       b)  $(a+b)^2$                       c)  $(a-b)^2$

3) The Orthocentre of an obtuse angled triangle lie \_\_\_\_\_ of the triangle.

- a) on the vertex      b) in the exterior      c) in the interior

4) Fifth root of 13 is written as  $13^{\frac{1}{\square}}$

- a) 13                      b) 5                      c) 15

5) If only one pair of opposite sides of a quadrilateral is parallel then it is called a \_\_\_\_\_.

- a) kite                      b) parallelogram      c) trapezium

**B) State whether the following statements are true or false and rewrite the statements :- [ 5 ]**

1)  $\frac{8}{7} < 0$

2) Diagonals of a rhombus are perpendicular bisectors of each other

3) If  $\sqrt[3]{729} = 9$  then  $\sqrt[3]{0.000729} = 0.09$

4) When two parallel lines are intersected by a transversal, the angles formed in each pair of corresponding angles are congruent.

5)  $3mn + 6 mn^2 = 3mn (1 + 2 n)$

**Q. 2 Attempt any six of the following.**

**[ 12 ]**

- 1) Factorise the following by using identity  $x^3 + 27y^3$
- 2) Ajay sold a land for ₹ 2,50,000 to Mr. Dipak through a broker. Broker received 2% brokerage from both. Find the total brokerage received by the broker by completing following activity.

Solution :

Price of the land = ₹

$$\backslash \text{ Brokerage} = \text{} \times \frac{2}{100} = \text{$$

Brokerage received from both, buyer and seller.

$$\backslash \text{ Total brokerage} = 5000 + \text{} = ₹10,000$$

- 3) Expand the following by using formula  $(a + 2) (a + 3)$
- 4) Draw a line 'm'. Draw a line 'n' which is parallel to line 'm' at a distance of 4 cm from it. (by using compass)
- 5) If diagonal of a rectangle is 26 cm and one side is 24 cm, find the other side.  
(Complete the following activity by filling in the given boxes.)

Solution :

Let the  ABCD be the given rectangle

$$l(BC) = 24 \text{ cm and } l(AC) = 26 \text{ cm}$$

In right angled triangle ABC,

by Pythagoras theorem.

$$l(AC)^2 = l(AB)^2 + l(BC)^2$$

$$(26)^2 = l(AB)^2 + (24)^2$$

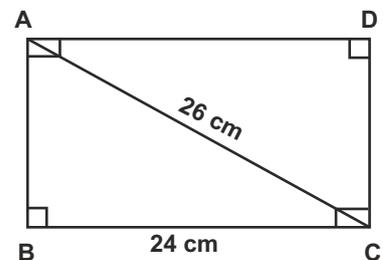
$$676 = l(AB)^2 + 576$$

$$\backslash l(AB)^2 = \text{} - \text{$$

$$\backslash l(AB)^2 = \text{$$

$$\backslash l(AB) = \text{} \text{ cm.}$$

$$\backslash \text{ Length of the other side of the rectangle is } \text{} \text{ cm.}$$

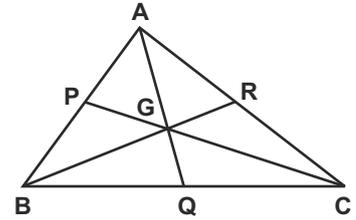


6) Cost of apples (m) and their number (n) are in direct variation.

If  $m = 1$  and  $n = 8$  then find the constant of variation.

7) In adjoining figure, point G is the centroid of ABC.

Observe the adjoining Figure and fill in the boxes given below.



If  $l(PG) = 2.5$ , then  $l(GC) = ?$

$$\frac{l(GC)}{l(PG)} = \frac{2}{1} \dots\dots\dots \text{The centroid divides each median in the ratio } \boxed{\phantom{00}}$$

$$\frac{l(GC)}{2.5} = \frac{2}{1}$$

$$l(GC) = \boxed{\phantom{00}} \times \boxed{\phantom{00}}$$

$$= \boxed{\phantom{00}}$$

**Q. 3 Attempt any five of the following.**

**[ 15 ]**

1) 'a' varies inversely as 'b', If  $a = 15$ , then  $b = 10$ .

Find i) Constant of variation ii) If  $a = 20$ , then  $b = ?$

2) Represent number  $\sqrt{2}$  on the number line.

3) If the marked price of the is ₹ 990 and percentage of discount is 10, then find selling price.

4) Expand the following by filling the given boxes.

$$(198)^3$$

Solution :

By using formula

$$(a - b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$$

$$(\boxed{\phantom{00}} - 2)^3 = (\boxed{\phantom{00}})^3 - 3 \times (200)^2 \times (2) + 3 \times (200) \times (2)^2 - (\boxed{\phantom{00}})^3$$

$$= 8000000 - \boxed{\phantom{00000}} + \boxed{\phantom{00000}} - 8$$

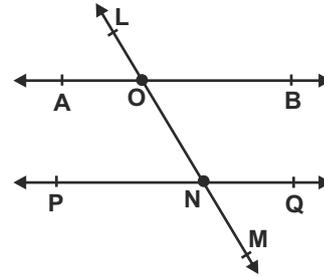
$$= \boxed{\phantom{0000000}}$$

5) In the adjoining figure line AB  $\parallel$  line PQ.

line LM is a transversal.

Observe the figure and

fill in the given boxes.



(1) Interior alternate angles

a)  $\angle AON = \square$

b)  $\angle BON = \square$

(2) Exterior alternate angles.

a)  $\angle LOA = \square$

b)  $\angle LOB = \square$

(3)  $m\angle AON + m\angle ONP = \square$  .....(Interior angles are  $\square$  )

6)  $\frac{x^2 - 5x - 24}{(x + 3)(x + 8)} \times \frac{x^2 - 64}{(x - 8)^2}$

**Q. 4 Attempt any two of the following.**

**[ 08 ]**

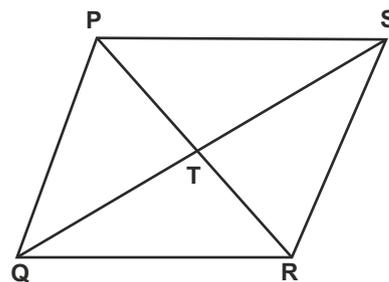
1) Fill in the boxes with appropriate terms in the steps of expansion.

$$(2k + 3m + 4n)^2 = \square + \square + \square + 2 \times 2k \times 3m + 2 \times \square \times 4n$$

$$+ 2 \times 2k \times \square$$

$$= 4k^2 + 9m^2 + 16n^2 + \square + \square + \square$$

2) In adjoining figure  $\square$  PQRS is parallelogram. T is point of intersection of its diagonals.



Observe the figure and fill in the given boxes.

1) If  $l(PS) = 5.4$  cm the  $l(QR) = \square$  .....  $\square$  Reason

2) If  $l(TS) = 3.5$  cm then  $l(QS) = \square$  .....  $\square$  Reason

3) If  $m\angle QRS = 118^\circ$  , Then  $m\angle QPS = \square$  .....  $\square$  Reason

4) If  $m\angle SRP = 72^\circ$  , Then  $m\angle RPQ = \square$  .....  $\square$  Reason

3) A car with speed 60 km/h takes 8 hours to travel some distance.

What should be the increase in the speed, If the same distance is to be

covered in  $7\frac{1}{2}$  hours ?

**Q. 5 Attempt any one of the following.**

**[ 5 ]**

1) Construct  $\square$  LMNO, such that  $l(LM) = l(LO) = 6$  cm,  $l(ON) = l(NM) = 4.5$  cm,

$l(OM) = 7.5$  cm.

2) Construct  $\square$  PQRS such that  $l(QR) = 5$  cm,  $l(RS) = 6.2$  cm,  $l(SP) = 4$  cm,

$m\angle R = 62^\circ$ ,  $m\angle S = 75^\circ$ .

