Half Yearly Examination 2019-20

Sub. : Mathematics

Class : VIII

Time : 2.30 Hrs. **M.M. : 80**

General Instructions :

i) All questions are compulsory.

ii) This question paper contains 32 questions divided into 4-sections A, B, C and D.

iii) Section-A comprises of 8 questions of 1 mark each, Section-B comprises of 8 questions of 2 marks each, Section-C comprises of 8 questions of 3 marks each and Section-D comprises of 8 questions of 4 marks each.

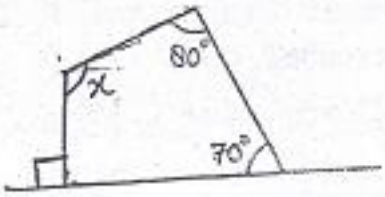
iv) Use of calculators is not permitted.

Section-A

Q.1 Write the additive inverse of $\frac{5}{-8}$.

Q.2 Solve : $6x - 9 = 15$

Q.3 Find x in adjoining figure.



Q.4 Find the square of 25.

Q.5 Find the cube of 20.

Q.6 72% of 25 students are good in mathematics. How many students are good in mathematics?

Q.7 Write the formula of finding Simple Interest.

Q.8 Show the numbers on number line : $\frac{4}{5}$

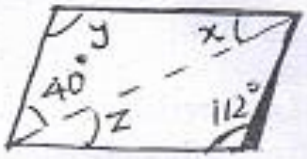
Section-B

Q.9 Using appropriate properties find : $\frac{-2}{3} \times \frac{3}{5} + \frac{5}{2} - \frac{3}{5} \times \frac{1}{6}$

Q.10 Solve the eq^n. :

$$\frac{2x}{3}+1=\frac{7x}{15}+3$$

Q.11 Find the value of the unknown x, y, z.



Q.12 Construct the parallelogram "MORE".
OR = 6cm.
RE = 4.5cm
EO = 7.5cm

Q.13 Using the given pattern find the missing numbers :
$3^2+4^2+12^2 = 13^2$
4^2+5^2+ ..... $= 21^2$
5^2+ __ $+30^2 = 31^2$
$6^2+7^2+(\quad)^2 = (\quad)^2$

Q.14 Find the smallest number should 53240 be divided. So that the quotient is a perfact cube?

Q.15 The list price of a froek is ₹ 220. A discount of 20% is announced on sales. What is the amount on it and sale price?

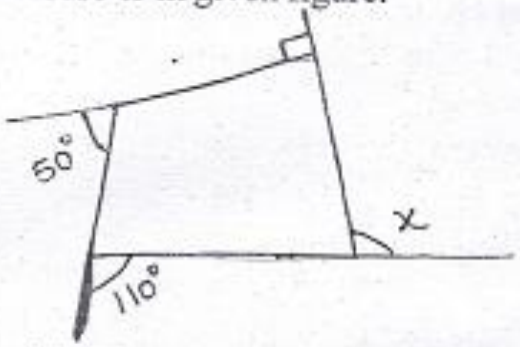
Q.16 Aman got a 10% increase in his salary. If new salary is ₹ 1,54,000. Find his original salary.

Section-C

Q.17 Represent : $\frac{-2}{11}, \frac{-5}{11}, \frac{-9}{11}$ on the number line.

Q.18 The perimeter of a rectangle is 13cm and its width is $2\frac{3}{4}$ cm. Find its length.

Q.19 Write the property of "The sum of the measures of the external angle". And use the property. Find measure x in given figure.



Q.20 Construct a quadrilateral "MIST" where
MI = 3.5cm, $\angle M = 75^0$
IS = 6.5cm, $\angle I = 105^0$ and $\angle S = 120^0$.
Use only scale and protractor.

Q.21 When a die thrown, list the outcomes of an event of getting :
i) a prime number ii) an odd number iii) a number greater than 5

Q.22 Write pythogoren triplet whose one member is 12.

Q.23 Find the cube root of the following number by prime factorisation method
110592

Q.24 A milkman sold two of his buffaloes ₹ 20,000 each. On one he made a gain of 5% and on the other a loss of 10%. Find his overall gain or loss.

Section-D

Q.25 Find the ten rational numbers between $\frac{3}{5}$ and $\frac{3}{4}$.

Q.26 Sum of the digits of a two digit number is 9. When we interchange the digits, it is found that the resulting new number is greater than the original number of 27. What is the two digit number?

Q.27 Simplify and solve the following linear eq^n.
i) $0.25\,(4f - 3) = 0.05\,(10f - 9)$
ii) The sum of three consecutive multiples of 11 is 363. Find these multiples.

Q.28 Construct the following quadrilateral and write all steps also.
Quadrilateral TRUE

TR = 3.5cm
RU = 3cm
UE = 4cm
$\angle R = 75^0$, $\angle U = 120^0$

Use only scale and protractor.

Q.29 Draw a pie chart showing the following information. The table shows the colours preffered by a group of people. Make table with fraction and centre angle also.

Colours	No. of People
Blue	18
Green	9
Red	6
Yellow	3
Total	36

Q.30 Find the square root by division method.

i) 51.84
ii) 7.29
iii) 7921
iv) 2304

Q.31 Find the cube root with out factorisation means by other method (estimation method).

i) 17576
ii) 857375

Q.32 Calculate the amount and compound interest on ₹ 18000 for 2½ year at 10% per annum compounded annually.

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Marking scheme

* Section A *

Ans 1. $\frac{5}{-8} = -\frac{5}{8}$

$\therefore$ additive inverse $= \frac{5}{8}$ (1) mark

Ans 2. $6x - 9 = 15$

$6x = 15 + 9 = 24$ ($\frac{1}{2}$) mark

$x = \frac{24}{6}$

$x = 4$ ($\frac{1}{2}$) mark

Ans 3. from figure

$x + 90^\circ + 70^\circ + 90^\circ = 360^\circ$ ($\frac{1}{2}$) mark

$x + 240^\circ = 360^\circ$

$x = 360 - 240$

$x = 120^\circ$ ($\frac{1}{2}$) mark

Ans 4. $(25)^2 = (2 \times 3)$ hundred $+ 5^2$ ($\frac{1}{2}$) mark

$= 600 + 25$

$= 625$ ($\frac{1}{2}$) mark

or

$(29)^2 = 25 \times 25$

$= 625$ (1) mark

Ans 5. $(20)^3 = 20 \times 20 \times 20$ ($\frac{1}{2}$) mark

$= 8000$ ($\frac{1}{2}$) mark

Ans 7. $S.I. = \frac{P \times R \times T}{100}$ (1) mark

Ans 8. $\frac{4}{5}$

(1) mark

Section. B

Ans. 9. $-\frac{2}{3} \times \frac{3}{5} + \frac{5}{2} - \frac{3}{5} \times \frac{1}{6}$

$= -\frac{2}{3} \times \frac{3}{5} - \frac{3}{5} \times \frac{1}{6} + \frac{5}{2}$ commutative

$= \frac{3}{5}\left(-\frac{2}{3} - \frac{1}{6}\right) + \frac{5}{2}$ distributive p

$= \frac{3}{5}\left(\frac{-4-1}{6}\right) + \frac{5}{2}$

$= \frac{\cancel{3}^{1}}{\cancel{5}} \times \frac{-\cancel{5}}{\cancel{6}_{2}} + \frac{5}{2}$

$= -\frac{1}{2} + \frac{5}{2} = \frac{-1+5}{2} = \frac{\cancel{4}^{2}}{\cancel{2}} = 2$

Ans 10. $\frac{2x}{3} + 1 = \frac{7x}{15} + 3$

$\frac{2x}{3} - \frac{7x}{15} = 3 - 1$ (1

$\frac{10x - 7x}{15} = 2$

$\frac{\cancel{15}x}{\cancel{15}_{5}} = 2$

$x = 2 \times 5$, i.e. $x = 10$ (

Ans. 11. From figure

$y = 112°$ (Opposite angle of llogram)

by A.S.P of triangle

$40° + y + x = 180°$

$40° + 112° + x = 180°$

$152° + x = 180°$

$x = 180° - 152°$

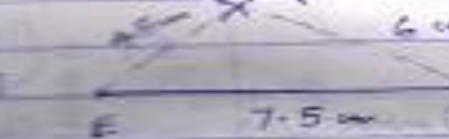
$x = 28°$ (

$z = x = 28°$ (A.I.A). (1

Ans. 12. Rough sketch

E 4.5 cm R

$(1\frac{1}{2})$ mark



Step I & II

Step III & IV

So MORE is req. llogram

Ans 13.

$3^2 + 4^2 + 12^2 = 13^2$

$4^2 + 5^2 + \underline{20^2} = 21^2$ $(\frac{1}{2})$ mark

$5^2 + \underline{6^2} + 30^2 = 31^2$ $(\frac{1}{2})$ mark

$6^2 + 7^2 + \underline{42^2} = \underline{43^2}$ (1) mark

Ans 14. 53240

2	53240
2	26620
2	13310
11	6655
5	605
11	121
	11

$53240 = 2 \times 2 \times 2 \times 5 \times 11 \times 11 \times 11$ $(\frac{1}{2})$ mark

How 19 has no pair, How 5 has no group of three so $53240 \div 5 = 10648$

If we divide 53240 by 5 so we get a p cubeno. (1) m

Ans 15: G.that

MRP of frock = ₹ 220.
discount% = 20%.
discount = ?, S.P. = ?

a.t.q.

dis = 20% of ₹ 220
$= \frac{20}{100} \times 220$

dis. = ₹ 44 (1) mark

Se. S.P. = MRP − dis.
= 220 − 44
= ₹ 176 ($\frac{1}{2}$) mark

OR.

$S.P. = \left(\frac{100 - D\%}{100}\right)$

$= \left(\frac{100-20}{100}\right) \times$

$= \frac{80}{100} \times 220$

= ₹176

∴ dis = MRP − S.P.
= 220 − 176
= ₹ 44.

Ans 16 G.that:

increasing% = 10%.
New salary = ₹ 1,54,000 ($\frac{1}{2}$) mark
Original salary = ?

a.t.q.

Let original salary = ₹ x.
increasing salary = 10% of x
$= \frac{10}{100} \times x$
$= \frac{x}{10}$ ($\frac{1}{2}$) mark

∴ New salary $= x + \frac{x}{10}$

$\Rightarrow \frac{x}{1} + \frac{x}{10} = 1,54,000$

$\frac{11x}{10} = 1,54,000$

$x = \frac{1,54,000 \times 10}{11}$

$x = ₹ 1,40,000$

OR.

New salary = (

⇒ Original salary =

$= \frac{100 \times 154}{(100+10}$

$= \frac{10 \times 140}{110}$

$= 10 \times 1400$

= ₹ 1,40,000

Section C

Ans 17:- $-\frac{2}{11}, -\frac{5}{11}, -\frac{9}{11}$

(1) mar

C2 mar

Ans 18:- Q. that

Perimeter of rectangle = 13 cm.

$b = 2\frac{3}{4} = \frac{11}{4}$ cm

let $l = x$ cm. $(\frac{1}{2})$ mar

a.t.q.

perimeter $= 2(l+b) = 13$ cm $(\frac{1}{2})$ mar

$2(\frac{x}{1} + \frac{11}{4}) = 13$

$x(\frac{4x+11}{4}) = 13$

$4x + 11 = 26$

$4x = 26 - 11$

$4x = 15$

$x = \frac{15}{4} = 3\frac{3}{4}$ cm. $(1\frac{1}{2})$ mark

So length $= 3\frac{3}{4}$ cm. $(\frac{1}{2})$ mark

Ans 19:- The sum of measures of the external angle $= 360^\circ$ (1 mark)

from figure

$x + 90^\circ + 50^\circ + 110^\circ = 360^\circ$

$x + 250^\circ = 360^\circ$

$x = 360 - 250$

Ans 20 Given:

$MI = 3.5$ cm, $IS = 6.5$ cm

$\angle M = 75^\circ$, $\angle I = 105^\circ$, $\angle S = 120^\circ$

Step 1

M ——— 3.5 cm I

Step 2: Draw $\angle M = 75^\circ$ and $\angle I = 15$

Step 3: cut $IS = 6.5$ cm

Step 4: Draw $\angle S = 120^\circ$

Step 5: req. quad. "MIST"

Ans 21:- $P(E) = \frac{\text{No. of fav. outcomes}}{\text{Total no. of outcomes}}$

die no = 1, 2, 3, 4, 5, 6

(i). prime no. = 2, 3, 5 so fav. outcomes = 3

Total outcomes = 6

$\therefore P(\text{prime no.}) = \frac{3}{6} = \frac{1}{2}$

(ii) odd no = 1, 3, 5

no. fav. outcomes = 3

$P(\text{odd no}) = \frac{3}{6} = \frac{1}{2}$

(iii). no. greater than 5 = 6.

∴ no. of fav. outcomes = 1

$P(\text{greater than 5}) = \frac{1}{6}$

Ans 22: Pythagarean triplet are

$2m, m^2-1, m^2+1$

a.t.q

$2m = 12$

$m = 6$

$\therefore m^2-1 = 6^2-1 = 36-1 = 35$

$m^2+1 = 6^2+1 = 36+1 = 37$

∴ Py. triplet are

12, 35, 37

Ans 23:- 110592

Ans. 32 G.that.

$P = ₹\ 18000$ $\quad CI = ?$

time $= n = 2$ and $\frac{1}{2}$ years $\quad A = ?$

$R = 10\%$ per year

First we calculate for $n = 2$ years by compounded In.

$$A = P\left(1+\frac{R}{100}\right)^n$$

$$= 18000\left(1+\frac{10}{100}\right)^2$$

$$= 18000\left(\frac{110}{100}\right)^2 = 18000\times\left(\frac{11}{10}\right)^2$$

$$= 180\cancel{00}\times\frac{11}{\cancel{10}}\times\frac{11}{\cancel{10}}$$

$$= 180\times121$$

$A = ₹21780$ (2) marks

For $n = \frac{1}{2}$ years by S.I.

$P = ₹\ 21780$

$R = 10\%$ / year

$t = \frac{1}{2}$ years

$$\therefore S.I = \frac{P\times R\times t}{100}$$

$$= \frac{\overset{1039}{\cancel{21780}}\times\cancel{16}\times1}{\cancel{100}\times\cancel{2}_1}$$

$= ₹1039$ (1) mark

$\therefore$ Finally $A = P + S.I.$

$= 21780 + 1039$

$= 22819$ — $(\frac{1}{2})$ mark

$\therefore A = ₹\ 22819$

$P = ₹\ 18000$

$\therefore C.I. = A - P = 22819 - 18000$

$= ₹\ 4819.$ $(\frac{1}{2})$ mark