Ganit Prabhutwa Exam: Standard VIII, 8-12-2024

Scheme of Marking

Q.No. Answers

1.(A) (1) B (2) B (3) A (4) B (5) D (6) C (7) B (8) A (9) A (10) D

(B) (1) 9,96,004 (2) $x=3$ (3) Rs. 1680 (4) 14 (5) 132 cm.

2.(1) $(6a^2-7a-3) \div (4a^2-9)$

$6a^2-7a-3 = (3a+1)(2a-3)$

$4a^2-9 = (2a+3)(2a-3)$

$\therefore$ given expression $= \frac{(3a+1)(2a-3)}{(2a+3)(2a-3)} = \frac{3a+1}{2a+3}$

(2) चाकाचा परीघ $= \pi d = 90 \times 3.14$ cm. $1413\text{ m} = 141300$ cm.

No. of revolutions $= \frac{\text{distance}}{\text{circumference}} = \frac{141300}{90 \times 3.14}$

$= \frac{1413000}{9 \times 314} = \frac{157000}{314} = 500$

(3) $3A + \frac{2}{3}B - \frac{5}{2}C = 3(4m^2-5m+7) + \frac{2}{3}(5m-8) - \frac{5}{2}(3m^2+6m-7)$

$= 12m^2 - 15m + 21 + \frac{10}{3}m - \frac{16}{3} - \frac{15m^2}{2} - 15m + \frac{35}{2}$

$= m^2\left(12 - \frac{15}{2}\right) + m\left(-15 + \frac{10}{3} - 15\right) + \left(21 - \frac{16}{3} + \frac{35}{2}\right)$

$= m^2\left(\frac{24-15}{2}\right) + m\left(\frac{-45+10-45}{3}\right) + \left(\frac{126-32+105}{6}\right)$

$= \frac{9m^2}{2} - \frac{80m}{3} + \frac{199}{6}$

3.(1) $(a+2b)^2 - (2a-b)^2 = [(a+2b)+(2a-b)][(a+2b)-(2a-b)]$

$= [a+2b+2a-b][a+2b-2a+b]$

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

(2) $I = \frac{PNR}{100}$. Given that $I = \frac{9}{16}P$ and $R = N$.

$\therefore \frac{9}{16}P = \frac{P \times R \times R}{100}$

$\therefore \frac{9}{16} = \frac{R^2}{100}$ ..... (dividing by P)

$\therefore 16R^2 = 900 \quad \therefore R^2 = \frac{900}{16} \quad \therefore R = \frac{30}{4} = 7.5$ p.c.p.a

(3) (i) Drawing PQ correctly

(ii) Drawing two circles as per instruction

(iii) Drawing seg MN

(iv) $l(MN) = 2.1 \pm 0.1$ cm

(v) Type – Kite

4. (1)

	21.85
2	$\overline{4}\,\overline{77}\cdot\overline{42}\,\overline{25}$
+2	-4
41	077
+1	-41
428	-3642
+8	3424
4365	021825
+5	-21825
4370	00000

(2) उदाहरणातील अपूर्णांकांचे छेद लक्षात घेऊन, अकबरला मिळणारी रक्कम $12x$ मानू.

∴ अमरला मिळणारी रक्कम $\frac{2}{3}\times 12x = 8x$

आणि अँथनीला " " $4\times 12x = 48x$.

एकूण रक्कम रु. 39,100 आहे.

∴ $8x + 12x + 48x = 39{,}100$ ∴ $68x = 39{,}100$

∴ $x = \frac{39100}{68} = \frac{2300}{4} = 575$

∴ अकबरला रु. $12\times 575 =$ रु. 6900 मिळतील.

[टीप: अकबरला मिळणारी रक्कम 12 रुपये मानूनही हे उदाहरण याच पायऱ्यांनी सोडवता येईल.]

(3) Let the unit's place in the number be x.

∴ the hundred's place will be $(x+1)$.

and the ten's place will be $x+(x+1) = 2x+1$.

The largest single digit square number is 9. Double that number is 18

∴ $x + (2x+1) + (x+1) = 18$

∴ $4x + 2 = 18$ ∴ $4x = 16$ ∴ $x = 4$.

∴ units place digit is 4; hundred's place digit is 5 and ten's place digit is $4+5 = 9$.

∴ the number is 594

5. (1) Let us suppose that the second bus meets the first after x hours from its starting time. In that time it travels $(40x)$ km

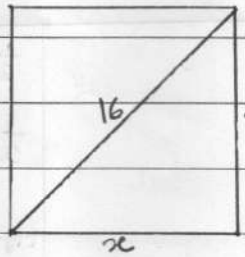
Till that time, the first bus has run $(x+\frac{3}{4})$ hrs and has travelled $32(x+\frac{3}{4})$ km.

When they meet, they have travelled the same distance

∴ $40x = 32(x+\frac{3}{4})$ ∴ $40x = 32x + 24$ ∴ $x = 3$.

∴ they will meet after 3 hours after (7:15), that is at 10 hrs 15 minutes

Distance travelled $= 40\times 3 = 120$ km

(2) 

Let each side of the square be x. Each angle of a square is a right angle
$\therefore$ by Pythagoras's theorem,
$x^2+x^2=16^2 \therefore 2x^2=256$
$\therefore x^2=128 \therefore x=\sqrt{128}=\sqrt{64\times2}=8\sqrt{2}$
$\therefore$ side of the square is $8\sqrt{2}$ cm.
area " " " is $(\sqrt{128})^2=128\ cm^2$
and perimeter " " is $4\times8\sqrt{2}=32\sqrt{2}$ cm.

(3) Let the number of students failed be x.
$\therefore$ " " " " passed is $2x$
$\therefore 2x+x=60 \therefore 3x=60 \therefore x=20$ and $2x=40$
$\therefore$ 40 students passed and 20 failed.
Average marks of all students was 32
$\therefore$ total marks of all students was $32\times60=1920$
and " " " failed " " $16\times20=320$
$\therefore$ total marks of students who passed was $1920-320=1600$
$\therefore$ average of marks of students passed was $\frac{1600}{40}=40$

(4) $\sqrt[3]{729}=9,\ \sqrt{81}=9,\ \sqrt[3]{1000}=10$
$\sqrt[4]{4096}=8.$
$\therefore$ LHS $=9+8+9+10=36$
$\therefore 36=216^x=(6^3)^x=6^{3x}$
$\therefore 6^2=6^{3x}$
$\therefore 2=3x \therefore x=\frac{2}{3}$

(5) $A=P\left(1+\frac{R}{100}\right)^N \therefore A=10,00,000\left(1+\frac{8}{100}\right)^3=12,59,712$ रुपये
$\therefore$ अमोलला मिळालेले व्याज $1259712-10,00,000=$ रु. 259712.
$I=\frac{PNR}{100} \therefore I=\frac{1000000\times3\times8.5}{100}=$ रु. 2,55,000, कुणालला.
$\therefore$ अमोलची गुंतवणूक $(259712-255000)=4712$ रुपयांनी अधिक फायदेशीर ठरली.

6 (1) Let the numbers be A, B and C in order.
$\because$ product of two numbers = their L.C.M. × G.C.D;
$A\times B=25\times150$; $B\times C=15\times525$; $A\times C=5\times1050$.
$\therefore (A\times B)\times(B\times C)\times(A\times C)=(25\times150)\times(5\times525)\times(5\times1050)$
$\therefore A^2\times B^2\times C^2=25\times150\times15\times525\times5\times1050$
$=25\times150\times15\times105\times5\times5\times105\times10$
$=5\times5\times15\times15\times10\times105\times105\times5\times5\times105\times10$
$\therefore ABC=5\times15\times105\times10\times5$
$\therefore \frac{ABC}{AB}=\frac{5\times15\times105\times10\times5}{25\times150}=105=C$

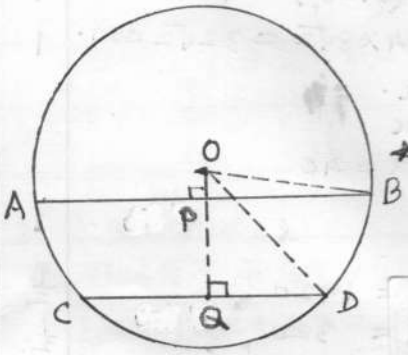
Space for Rough work

$\frac{ABC}{BC} = \frac{5\times15\times105\times10\times8}{15\times525} = 50 = A$

$\frac{ABC}{AC} = \frac{5\times15\times105\times10\times5}{5\times1050} = 75 = B.$

∴ the numbers are 50, 75, 105 in order

(2)



intersecting AB at P.

seg OQ ⊥ seg CD is drawn; ∠

As AB ∥ CD; OP ⊥ AB.

Draw segments OB, OD.

★ Perpendicular from the centre of a circle to its chord, bisects the chord.

∴ $QD = \frac{18}{2} = 9$ mm; $PB = \frac{80}{2} = 40$ mm.

∵ diameter is 82 mm, r = 41 mm.

∴ OB = OD = 41.

Now, by Pythagoras' property,

in $\triangle OQD$, $OD^2 = OQ^2 + QD^2$

∴ $41^2 = OQ^2 + 9^2$

∴ $OQ^2 = 41^2 - 9^2 = (41+9)(41-9)$

$= 50 \times 32 = 1600$

∴ OQ = 40 mm.

Similarly, in $\triangle OPB$, $OB^2 = OP^2 + PB^2 = OP^2 + 40^2$

∴ $41^2 = OP^2 + 40^2$ ∴ $OP^2 = 41^2 - 40^2 = (41+40)(41-40)$

$= 81 \times 1 = 81$

∴ OP = 9 mm

∴ PQ = = 40 mm − 9 mm = 31 mm.

———— X ————

★ segment joining the centre and the mid-point of a chord is perpendicular to the chord.