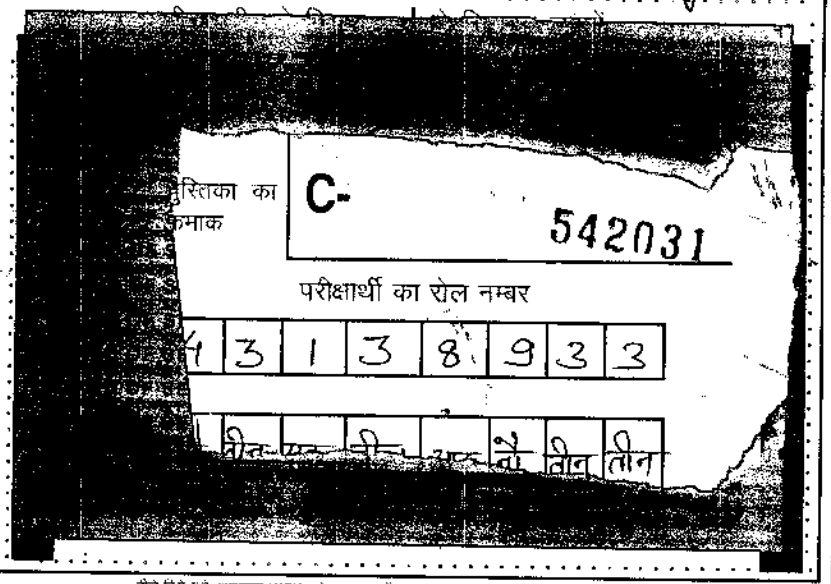
माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

24 पृष्ठीय

परीक्षार्थी द्वारा भरा जावे ↓

परीक्षा का विषय	विषय कोड	परीक्षा का माध्यम
Maths	1 0 0	English



पुस्तिका का क्रमाक C- 542031

परीक्षार्थी का रोल नम्बर

4	3	1	3	8	9	3	3

तीन एक तीन नौ आठ तीन एक तीन

नीचे दिये गये उदाहरण अनुसार रोल नम्बर भरें।

उदाहरणार्थ

1	1	2	4	3	9	5	6	8
एक	एक	दो	चार	तीन	नौ	पांच	छः	आठ

परीक्षार्थी द्वारा भरा जावे

क :– पूरक उत्तर पुस्तिकाओं की संख्या अंकों में 2 शब्दों में two

ख :– परीक्षार्थी का कक्ष क्रमाक 112

ग :– परीक्षा का दिनाक 07 03 14

परीक्षा का नाम एव परीक्षा केन्द्र क्रमाक की मुद्रा

हाई स्कूल परीक्षा [illegible]-12009

केन्द्राध्यक्ष / सहायक केन्द्राध्यक्ष एवं परीक्षक द्वारा भरा जावे

पर्यवेक्षक का नाम एव हस्ताक्षर	केन्द्राध्यक्ष / सहायक केन्द्राध्यक्ष के हस्ताक्षर
[illegible] Shrivastava 7/03/14	

परीक्षक एव उपमुख्य परीक्षक द्वारा भरा जावे

प्रमाणित किया जाता है कि मूल्याकन के समय पूरक उत्तर पुस्तिकाओं की सख्या उपरोक्तानुसार सही पाई गई होलो क्रापट स्टीकर क्षतिग्रस्त नहीं पाया गया तथा अन्दर के पृष्ठों के अनुरूप मुख्य पृष्ठ पर अकों की प्रविष्टी एव अकों का योग सही है।

निर्धारित मुद्रा नाम, पदनाम मोबाईल नम्बर, परीक्षक क्रमाक एव पदांकित सस्था के नाम की मुद्रा लगाए।

उप मुख्य परीक्षक के हस्ताक्षर एव निर्धारित मुद्रा	परीक्षक के हस्ताक्षर एव निर्धारित मुद्रा
S.HARDE 9770882	V.K.UPADHYAYA E/9770284

केवल परीक्षक द्वारा भरा जावे।

प्रश्न क्रमाक के सम्मुख प्राप्ताकों की प्रविष्टी करें।

प्रश्न क्रमाक	पृष्ठ क्रमाक	प्राप्ताक (अंकों में)
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कुल प्राप्ताक शब्दों में [illegible] अंकों में

Nine

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प्रश्न क्र

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Answer of Question 1

i)
Ans - (a) 10y + x

ii)
Ans - (b) 42

iii)
Ans - (d) 2

iv)
Ans - (d) 45

v)
Ans - (d) $\frac{1}{3}\pi r^2 h$

Answer of Que. no. 2

i)
Ans → $-x - \frac{1}{x}$

ii)
Ans → log m + log n

iii)
Ans - Equilateral

iv)
Ans - diameter

v)
Ans - $2\sqrt{3}\,a$

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Answer of Question No. 3

i) The value of y in equation $x+2y=5$, if value of $x=1$, will be 2.
Ans → True

ii) Compound interest is less than simple interest.
Ans → false

iii) In a right angled triangle hypotenuse is the longest side.
Ans → True

iv) Equal chords of a circle subtend equal angles at the centre
Ans → True

v) The probability of an event can be greater than 1 also.
Ans → False

BSE

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Answer of Que. No. 4

	Column 'A'		Column 'B'
i)	$\operatorname{Cosec}(90°-\theta)$	(d)	$\sec\theta$
ii)	$\sqrt{1-\cos^2\theta}$	(a)	$\sin\theta$
iii)	$\operatorname{cosec}^2\theta-1$	(e)	$\cot^2\theta$
iv)	$\frac{1}{\cot\theta}$	(b)	$\tan\theta$
v)	$\frac{\sin\theta}{\cos\theta}$	(c)	$\cot\theta$

BSE

Answer of Que. No. 5

Ans-(i) $x+2$

Ans-(ii) -2

Ans-(iii) $\sqrt{s(s-a)(s-b)(s-c)}$

Ans-(iv) $x = 70°$

Ans-(v)

BSE

प्रश्न क्र

Answer of Que:6 of OR

Statement of Thale's Theorem

"If a part parallel line is drawn to side of the triangle then it divides other two sides of the triangle in same ratio".

Answer of Question 7

Given:- $\triangle ABC$ and $\triangle DEF$ In which

$\angle A = 30^\circ$, $\angle B = 50^\circ$, $\angle C = 80^\circ$

$\angle D = 50^\circ$, $\angle E = 30^\circ$, $\angle F = 80^\circ$

$\because$ In $\triangle ABC$ and $\triangle DEF$

$\angle A \neq \angle D$

$\angle B \neq \angle E$

$\angle C = \angle F$

etc, only one corresponding angle is equal.

$\therefore \triangle ABC \not\sim \triangle DEF$

Thus, $\triangle ABC$ is not similar to $\triangle DEF$

प्रश्न 8

Answer of Ques. 8 ~~of QR~~

~~Given :- $\triangle ACB$ is an isosceles triangle.~~

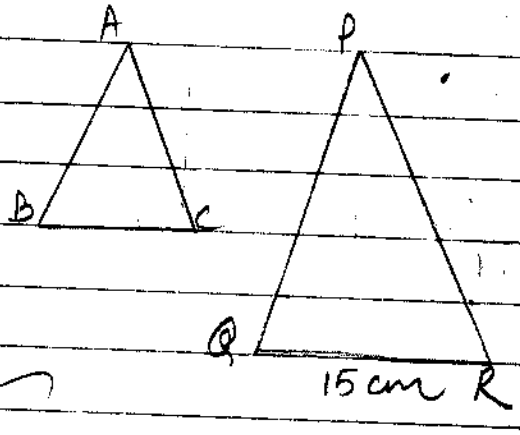
Solu :- Given :- $\triangle ABC \sim \triangle PQR$.

Area of $\triangle ABC = 64\ cm^2$

Area of $\triangle PQR = 121\ cm^2$

Length of $QR = 15\ cm$

To find :- Length of side BC



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$\because$ $\frac{\text{Area of } \triangle ABC}{\text{Area of } \triangle PQR} = \frac{64}{121}$

Area

$\frac{\text{Area of } \triangle ABC}{\text{Area of } \triangle PQR} = \frac{(BC)^2}{(QR)^2}$

[$\because$ Ratio of areas of similar triangles is equal to the ratio of their corresponding sides].

$\frac{64}{121} = \left(\frac{BC}{QR}\right)^2$

$\sqrt{\frac{64}{121}} = \frac{BC}{QR}$

$\frac{8}{11} = \frac{BC}{15}$

$BC = \frac{8 \times 15}{11}$

BSE

प्रश्न 8

$$BC = \frac{120}{11}$$

$$\therefore BC = \frac{120}{11} \text{ cm} \quad \text{Answer}$$

Answer of Question - 9

Given:- Speed of 10 motor cycles in km/hr :
~~Arranging~~ : 47, 53, 49, 60, 39, 42, 53, 52, 53, 55

$$\text{Mean} = \frac{\text{sum of all observations}}{\text{No. of observations}}$$

$$= \frac{47+53+49+60+39+42+53+52+53+55}{10}$$

$$= \frac{503}{10}$$

$$= 50.3$$

Thus, the mean speed = 50.3 km/hr.

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Answer of Question 10 of OR

Given :-

Solu:- Sample space $S = \{1, 2, 3, 4, 5, 6\}$

$n(S) = 6$

Favourable events = 0 [∵ 9 not occur in dice]

$n(E) = \{\}$

Probability $P(A) = \frac{n(E)}{n(S)}$

$= \frac{0}{6}$

$= 0$

Thus, probability of getting 9 is 0.

Answer of Question 11

Solu: $cx + 2y = c - 2$ — (i)

$8x + cy = c$ — (ii)

Comparing the equations with $a_1x + b_1y \pm c_1 = 0$ and $a_2x + b_2y \pm c_2$

$a_1 = c$, $b_1 = 2$, $c_1 = c - 2$

$a_2 = 8$, $b_2 = c$, $c_2 = c$

For infinitely many solutions

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(9)

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$$

$$\frac{c}{8} = \frac{2}{c} = \frac{c-2}{c}$$

$c^2 = 16$ [Taking $\frac{c}{8} = \frac{2}{c}$ only]

$c = \pm\sqrt{14}$

$c = \pm 4$

also, $\frac{2}{c} = \frac{c-2}{c}$

$2 = c - 2$

$2 + 2 = c$

$4 = c$

$c = 4$

Thus, it is proved that there is a value of $c = 4$ for which the system of equations has infinitely many solutions.

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Answer of Question 12

Solu- $3x - 4y - 11 = 0$

$3x - 4y = 11$ —— (i)

and $5x - 7y + 4 = 0$

$5x - 7y = -4$ —— (ii)

By Elimination method

Multiply eq(i) by 5 and eq.(ii) by 3

$15x - 20y = 55$ —— (iii)

$15x - 21y = -12$ —— (iv)

(−) (+) (+) [On subtraction]

$y = 67$

Putting the value of y in eq(ii)

$5x - 7y = -4$ —(ii)

$5x - 7 \times 67 = -4$

$5x - 469 = -4$

$5x = -4 + 469$

$x = \frac{465}{5}$

$x = 93$

Ans, $x = 93$ and $y = 67$ Answer

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Answer of Question 13

Given: $\frac{a}{y+z} = \frac{b}{z+x} = \frac{c}{x+y}$

To prove: $\frac{a(b-c)}{y^2-z^2} = \frac{b(c-a)}{z^2-x^2} = \frac{c(a-b)}{x^2-y^2}$

Let, $\frac{a}{y+z} = \frac{b}{z+x} = \frac{c}{x+y} = k$

$\therefore \frac{a}{y+z} = k, \frac{b}{z+x} = k, \frac{c}{x+y} = k$

$\therefore a = k(y+z)$

$b = k(z+x)$

$c = k(x+y)$

L.H.S.

$$\frac{a(b-c)}{y^2-z^2} = \frac{k(y+z)[k(z+x) - k(x+y)]}{y^2-z^2}$$

$$= \frac{k(y+z)[k(z+x-x-y)]}{y^2-z^2}$$

$$= \frac{k(y+z)[k(z-y)]}{y^2-z^2}$$

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$$= \frac{k(y+z)\,k(z-y)}{y^2-z^2}$$

$$= \frac{-k^2(y+z)(y-z)}{y^2-z^2}$$

$$= \frac{-k^2(y^2-z^2)}{(y^2-z^2)}$$

$$= -k^2$$

Taking Mid value

$$\frac{b(c-a)}{z^2-x^2} = \frac{k(z+x)\,[k(x+y)-k(y+z)]}{z^2-x^2}$$

$$= \frac{k^2(z+x)\,k(x+y-y-z)}{z^2-x^2}$$

$$= \frac{k^2(z+x)(x-z)}{z^2-x^2}$$

$$= \frac{-k^2(z+x)(z-x)}{z^2-x^2}$$

$$= \frac{-k^2(z^2-x^2)}{(z^2-x^2)}$$

$$= -k^2$$

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Taking R.H.S.

$$\frac{c(a-b)}{x^2-y^2} = k(y+z)[k($$

$$= k(z+x)[$$

$$\frac{c(a-b)}{x^2-y^2} = \frac{k(x+y)[k(y+z)-k(z+x)]}{x^2-y^2}$$

$$= \frac{k(x+y)[k(y+z-z-x)]}{x^2-y^2}$$

$$= \frac{k^2(x+y)(y-x)}{x^2-y^2}$$

$$= \frac{-k^2(x+y)(x-y)}{x^2-y^2}$$

$$= \frac{-k^2(x^2-y^2)}{(x^2-y^2)}$$

$$= -k^2$$

Thus, L.H.S. = Mid value = R.H.S.

Hence proved

Answer of Question : 14

Solu : $3x - \frac{3}{x} = -8$

$$3x - \frac{3}{x} + 8 = 0$$

$$\frac{3x^2 - 3 + 8x}{x} = 0$$

$$3x^2 + 8x - 3 = 0 \times x$$

$$3x^2 + 8x - 3 = 0$$

Comparing the equation with $ax^2 + bx + c = 0$

$a = 3$, $b = 8$, $c = -3$

Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-8 \pm \sqrt{8^2 - 4 \times 3 \times -3}}{2 \times 3}$$

$$x = \frac{-8 \pm \sqrt{64 + 36}}{6}$$

$$x = \frac{-8 \pm \sqrt{100}}{6}$$

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$x = \frac{-8 \pm 10}{6}$

Taking + sign

$x = \frac{-8+10}{6}$

$x = \frac{2}{6}$

$x = \frac{1}{3}$

Taking − sign

$x = \frac{-8-10}{6}$

$x = \frac{-18}{6}$

$x = -3$

Thus, $x = \frac{1}{3}$ or -3 Answer

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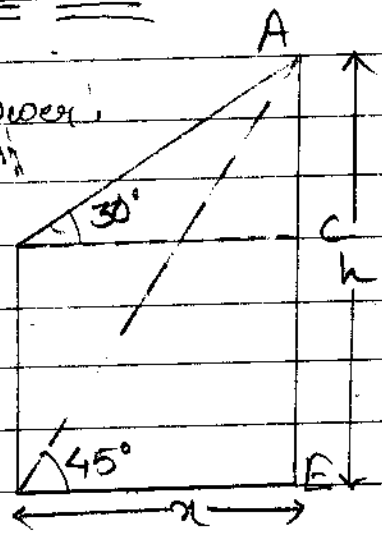
Answer of Question 15

Solu:- Let BD is a 100 m high tower.
AE is a rock of h m
The angle of elevation of top of the rock from foot and top of tower are 45° and 30° respectively
Let x be the distance between the foot of tower and the hill



Now, In right $\triangle ADE$

$$\frac{AE}{DE} = \tan 45°$$

$$\frac{h}{x} = 1$$

$$h = x \quad \text{— (i)}$$

In right $\triangle ABC$

$$\frac{AC}{AB} = \frac{h-100}{x} \tan 30°$$

$$\frac{h-100}{x} = \frac{1}{\sqrt{3}}$$

$$\sqrt{3}(h-100) = x \quad \text{— (ii)}$$

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$\sqrt{3}(h-100) = h$ [From eq (i) and eq (ii)]

$\sqrt{3}h - 100\sqrt{3} = h$

$\sqrt{3}h - h = 100\sqrt{3}$

$h(\sqrt{3}-1) = 100\sqrt{3}$

$h(1.732-1) = 100\sqrt{3}$

$h = \frac{100 \times 1.732}{0.732}$ [$\because 1.732-1=0.732$]

$h = \frac{173.2}{0.732}$ m

Thus height of the rock $= \frac{173.2}{0.732}$ m

Answer of Question - 16

Solu:- Diameter of 1st sphere $D_1 = 2$ cm

Radius of 1st sphere $r_1 = \frac{2}{2} = 1$ cm

Diameter of 2nd sphere $D_2 = 12$ cm

Radius of 2nd sphere $r_2 = \frac{12}{2} = 6$ cm

Diameter of 3rd sphere $D_3 = 16$ cm

Radius of 3rd sphere $r_3 = \frac{16}{2} = 8$ cm

Volume of 1st sphere + volume of 2nd sphere + volume of 3rd sphere = volume of new sphere

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$V_1 + V_2 + V_3 =$ Volume of new sphere

$\frac{4}{3}\pi r_1^3 + \frac{4}{3}\pi r_2^3 + \frac{4}{3}\pi r_3^3 = \frac{4}{3}\pi r^3$ [∵ Volume of sphere $= \frac{4}{3}\pi r^3$]

$\frac{4}{3}\pi (r_1^3 + r_2^3 + r_3^3) = \frac{4}{3}\pi r^3$

$\frac{4}{3}\pi (1^3 + 6^3 + 8^3) = \frac{4}{3}\pi r^3$

$\frac{4}{3}\pi (1 + 216 + 512) = \frac{4}{3}\pi r^3$

$\frac{4}{3}\pi \times 729 = \frac{4}{3}\pi r^3$

$\frac{4}{3}\pi \times 729 \times \frac{3}{4\pi} = r^3$

$729 = r^3$

$\sqrt[3]{729} = r$

$\sqrt[3]{9 \times 9 \times 9} = r$

$9 \text{ cm} = r$

Thus, the required radius of sphere = 9cm

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Answer of Question 17 of OR

Solu:- Let the radii of two cylinders be $2x$ and $3x$

And their heights be $5x$ and $3x$ respectively

i.e. $r_1 = 2x$, $r_2 = 3x$, $h_1 = 5x$, $h_2 = 3x$

Lateral surface of cylinder $= 2\pi rh$

(i)

Ratio of lateral surface of cylinders

$$= \frac{2\pi r_1 h_1}{2\pi r_2 h_2}$$

$$= \frac{2\pi \times 2x \times 5x}{2\pi \times 3x \times 3x}$$

$$= \frac{10}{9}$$

Thus, the ratio of lateral surfaces of cylinders $= 10:9$

We know that

Volume of cylinder $= \pi r^2 h$

(ii) Ratio of volume of cylinders $= \frac{\pi r_1^2 h_1}{\pi r_2^2 h_2}$

$$= \frac{\pi (2x)^2 \times 5x}{\pi (3x)^2 \times 3x}$$

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$$= \frac{4x^2 \times 5x}{9x^2 \times 3x}$$

$$= \frac{20x^3}{27x^3}$$

$$= \frac{20}{27}$$

$$= 20:27$$

Thus, the ratio of volume of cylinders
$= 20:27$

B S E

Answer of Question-18

Solu: $x(y^2-z^2) + y(z^2-x^2) + z(x^2-y^2)$

$= xy^2 - xz^2 + yz^2 - yx^2 + zx^2 - y^2z$

$= -x^2y + x^2z + xy^2 - xz^2 - y^2z + z^2y$

$= -x^2(y-z) + x(y^2-z^2) - yz(y-z)$

$= -x^2(y-z) + x(y+z)(y-z) - yz(y-z)$

$= (y-z)[-x^2 + x(y+z) - yz]$

$= (y-z)[-x^2 + xy + xz - yz]$

$= (y-z)[-x^2 - x(x-y) + z(x-y)]$

$= (y-z)(x-y)(-x+y+z)$

Arranging in cyclic order

$= (x-y)(y-z)(z-x)$

$(x-y)(y-z)(z-x)$ Ans

Answer of Question – 20

Solu:- Given:-

Principal $P = ₹1200$

Rate $r = 5\%$

Time $n = 4$ years

We know that

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

$$A = 1200\left(1+\frac{5}{100}\right)^4$$

$$A = 1200\left(\frac{100+5}{100}\right)^4$$

$$A = 1200\left(\frac{105}{100}\right)^4$$

$$A = 1200 \times \left(\frac{21}{20}\right)^4$$

$$A = \frac{\cancel{100}^{63} \times 21}{\cancel{20}} \times \frac{21}{\cancel{20}} \times \frac{21}{20} \times \frac{21}{20}$$

$$A = \frac{583443}{400}$$

$$A = ₹1458.60$$

Amount $A = ₹ 1458.60$

and Interest C.I. = Amount − Principal
$= 1458.60 - 1200$
$= ₹ 258.60$

Thus, Amount = ₹1458.60 and C.I. = ₹258.60 Answer

Answer of Question ~~20~~ 21

Given :- Let in $\triangle ABC$
$AB = 4$ cm
$BC = 6$ cm
and $CA = 8$ cm

To construct :- circumcircle of triangle

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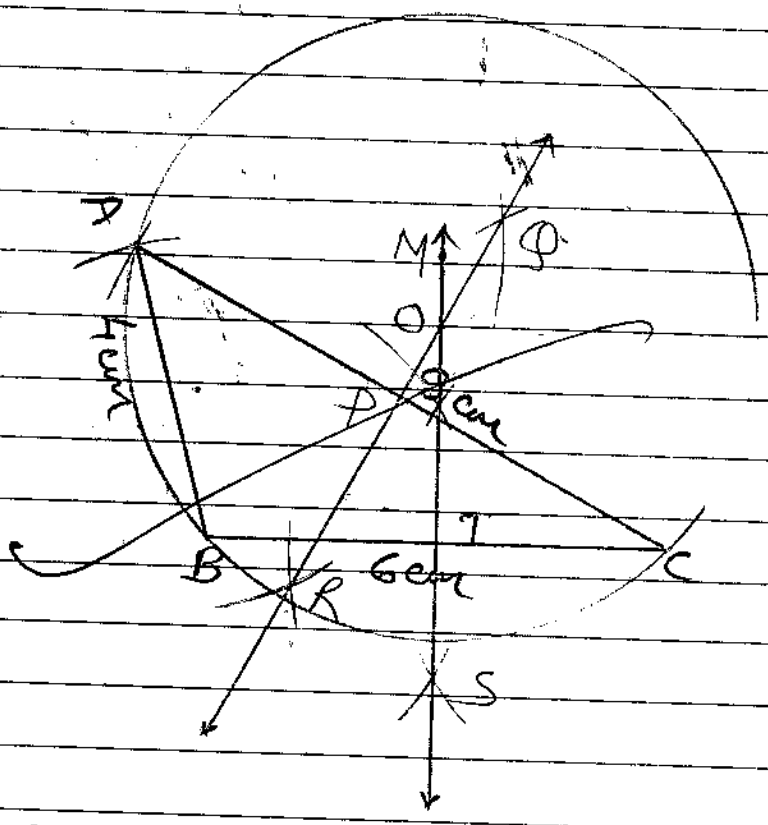
प्रश्न क्र

B S E



Steps of Construction

Construction of triangle

Draw a line BC = 6 cm

2) Taking B as centre and radius = 4 cm cut an arc.

3) Taking C as centre and radius = 8 cm cut another arc which intersect the previous arc at point A

4) Join A to B and C

Thus, the required triangle is constructed.

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परीक्षार्थी द्वारा भरा जावे ↓

परीक्षा का विषय	विषय कोड	परीक्षा का माध्यम	परीक्षा का दिनांक
Maths	1 0 0	English	07 03 14

परीक्षार्थी द्वारा भरा जावे →

[redacted]

परीक्षा का नाम एवं परीक्षा केन्द्र क्रमांक की मुद्रा

केन्द्र क्रमांक-312009

हाई स्कूल परीक्षा

पर्यवेक्षक का नाम एवं हस्ताक्षर

कमलेश कुमार पाण्डेय

Pandey.

केन्द्राध्यक्ष / सहायक केन्द्राध्यक्ष के हस्ताक्षर

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Construction of circumcircle

1) ~~Make~~ Draw the perpendicular bisectors ~~of~~ QR of side AC.

2) ~~Make~~ Draw perpendicular bisector of MS of side BC ~~wic~~ which cuts QR at O.

3) Now, taking O as centre and radius $r = AO = OB = OC$ make a circle.

4) Thus, the ~~circumference~~ circle of $\triangle ABC$ is formed with centre C.

के अंकों का योग

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Answer of Question 22

Solu:- $\frac{\operatorname{cosec}A}{\operatorname{cosec}A-1} + \frac{\operatorname{cosec}A}{\operatorname{cosec}A+1} = 2\sec^2 A$

$$L.H.S. = \frac{\operatorname{cosec}A}{\operatorname{cosec}A-1} + \frac{\operatorname{cosec}A}{\operatorname{cosec}A+1}$$

$$= \frac{(\operatorname{cosec}A)(\operatorname{cosec}A+1) + \operatorname{cosec}A(\operatorname{cosec}A-1)}{(\operatorname{cosec}A-1)(\operatorname{cosec}A+1)}$$

$$= \frac{\operatorname{cosec}^2A + \operatorname{cosec}A + \operatorname{cosec}^2A - \operatorname{cosec}A}{\operatorname{cosec}^2A - 1}$$

$$= \frac{2\operatorname{cosec}^2A}{\cot^2A}$$ $[\because 1+\cot^2A = \operatorname{cosec}^2A \quad \therefore \operatorname{cosec}^2A - 1 = \cot^2A]$

$$= \frac{2 \times \frac{1}{\sin^2A}}{\frac{\cos^2A}{\sin^2A}}$$ $\left[\because \operatorname{cosec}^2A = 1/\sin^2A \text{ and } \cot^2A = \frac{\cos^2A}{\sin^2A}\right]$

$$= \frac{2}{\sin^2A} \times \frac{\sin^2A}{\cos^2A}$$

$$= 2 \times \frac{1}{\cos^2A}$$

B
S
E

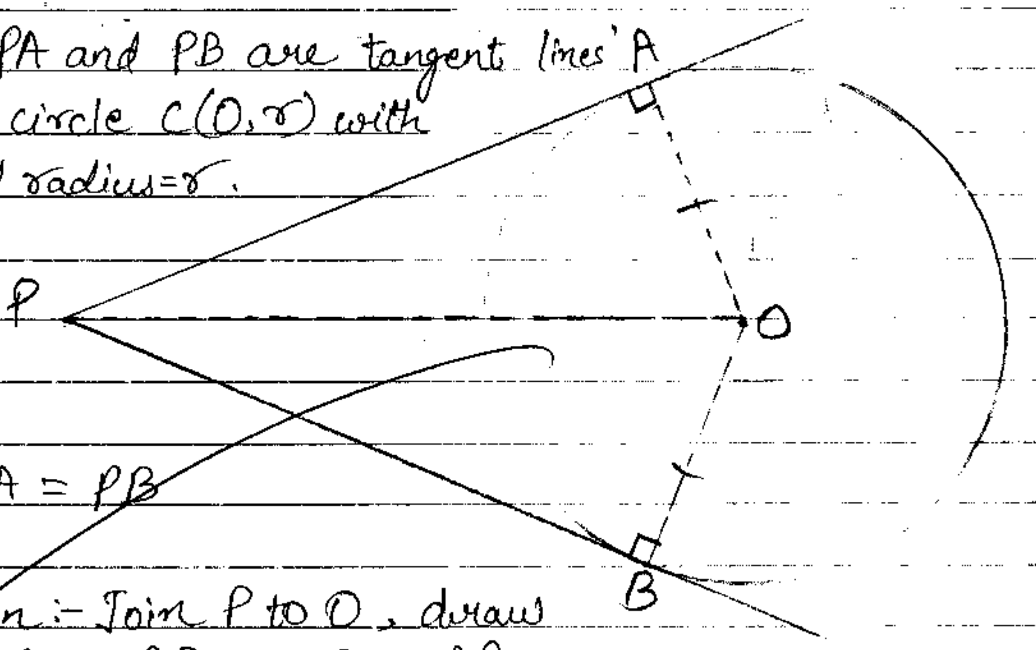
$= 2\sec^2 A$ $\quad [\because 1/\cos^2 A = \sec^2 A]$

= R.H.S.

Thus, L.H.S. = R.H.S. Hence Proved

Answer of Question 23

Soln:- Given:- PA and PB are tangent lines A draw in a circle C(O, r) with centre = O and radius = r.



To prove:- PA = PB

Construction:- Join P to O, draw AO ⊥ AP, OB ⊥ PB

Proof:-
∵ Tangle Tangent line drawn from an external point is always perpendicular to the radius of circle

∴ OA ⊥ PA
and OB ⊥ PB

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Now, In right △ POA and △ POB

hypotenuse PO = hypotenuse PO [common]

~~side~~ OA = OB [Radii of same circle]

∠ OAP = ∠ OBP [Each right angle]

∴ △ POA ≅ △ POB [By R.H.S. condition of congruency]

∴ PA = PB [corresponding sides of congruent triangles]

PA = PB Hence Proved

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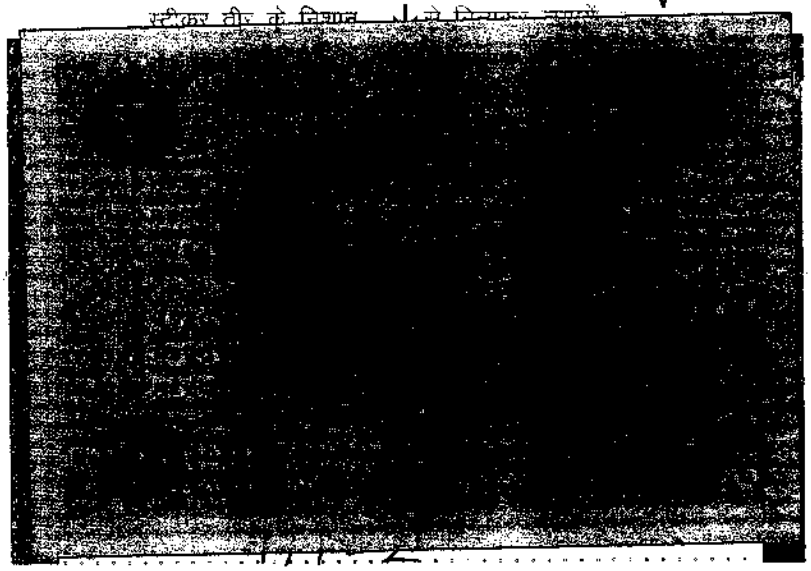
4 पृष्ठीय

परीक्षार्थी द्वारा भरा जावे ↓

परीक्षा का विषय	विषय कोड	परीक्षा का माध्यम	परीक्षा का दिनांक
Maths	1 0 0	English	07 03 14

स्टीकर वीर के निशान ↓ के निकट लगावें



परीक्षा का नाम एवं परीक्षा केन्द्र क्रमांक का उल्लेख

केन्द्र क्रमांक-312009

छाई सत्र परीक्षा

पर्यवेक्षक का नाम एवं हस्ताक्षर

Bandey.

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Answer of Question 24

Items	Quantity (in kg)	Cost in Rs/kg		Total cost	
		(Year 1995)	(Year 1999)	(Year 1995)	(Year 1999)
	qoi	poi	pli	qoi × poi	qoi × pli
A	20	12	15	240	300
B	10	07	08	70	80
C	12	15	20	180	240
D	15	35	40	425	600
E	5	15	30	75	150
Total				$\Sigma poi \times qoi$ =	$\Sigma qoi \times pli$ = 1370

Cost of living Index number $= \frac{\Sigma pli \times \Sigma qoi}{\Sigma poi \times \Sigma qoi} \times 100$

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$$= \frac{137\phi \times 100}{99\phi}$$

$$= \frac{13700}{99}$$

$$= ₹138.38 \quad [\text{approx}]$$

Thus, cost of living index number = ₹ 138.38

Answer of Question 19

B

S

E

Solu:- Let the usual speed of train be x km/hr.

Time taken to cover distance of 300 k

$$= \frac{300}{x} \text{ hrs.}$$

Decreased speed of train $= (x-5)$ km/hr

Time take to cover 300 km of decreasing speed $= \frac{300}{(x-5)}$

According to question

$$\frac{300}{(x-5)} + 2 = \frac{30}{x}$$

$$\frac{300}{(x-5)} - \frac{30}{x} = -2$$

$$\frac{300x - 30(x-5)}{x(x-5)} = -2$$

$$\frac{300x - 30x + 150}{x^2 - 5x} = -2$$

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$$270x + 150 = -2(x^2 - 5x)$$

$$270x + 150 = -2x^2 + 10x$$

$$2x^2 + 270x - 10x = -150$$

$$2x^2 + 260x = -150$$

$$2x^2 + 260x + 150 = 0$$

$$x^2 + 130x + 125 = 0$$

Taking $a = 1, b = 130, c = 125$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-130 \pm \sqrt{(130)^2 - 4 \times 1 \times 125}}{2 \times 1}$$

$$x = \frac{-130 \pm \sqrt{1690 - 500}}{2}$$

$$x = \frac{-130 \pm \sqrt{1190}}{2}$$

$x =$

Taking + sign

$$x = \frac{-130 + \sqrt{1190}}{2}$$

Taking − sign $\frac{-130 - \sqrt{1190}}{2}$