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CDS 2 2022

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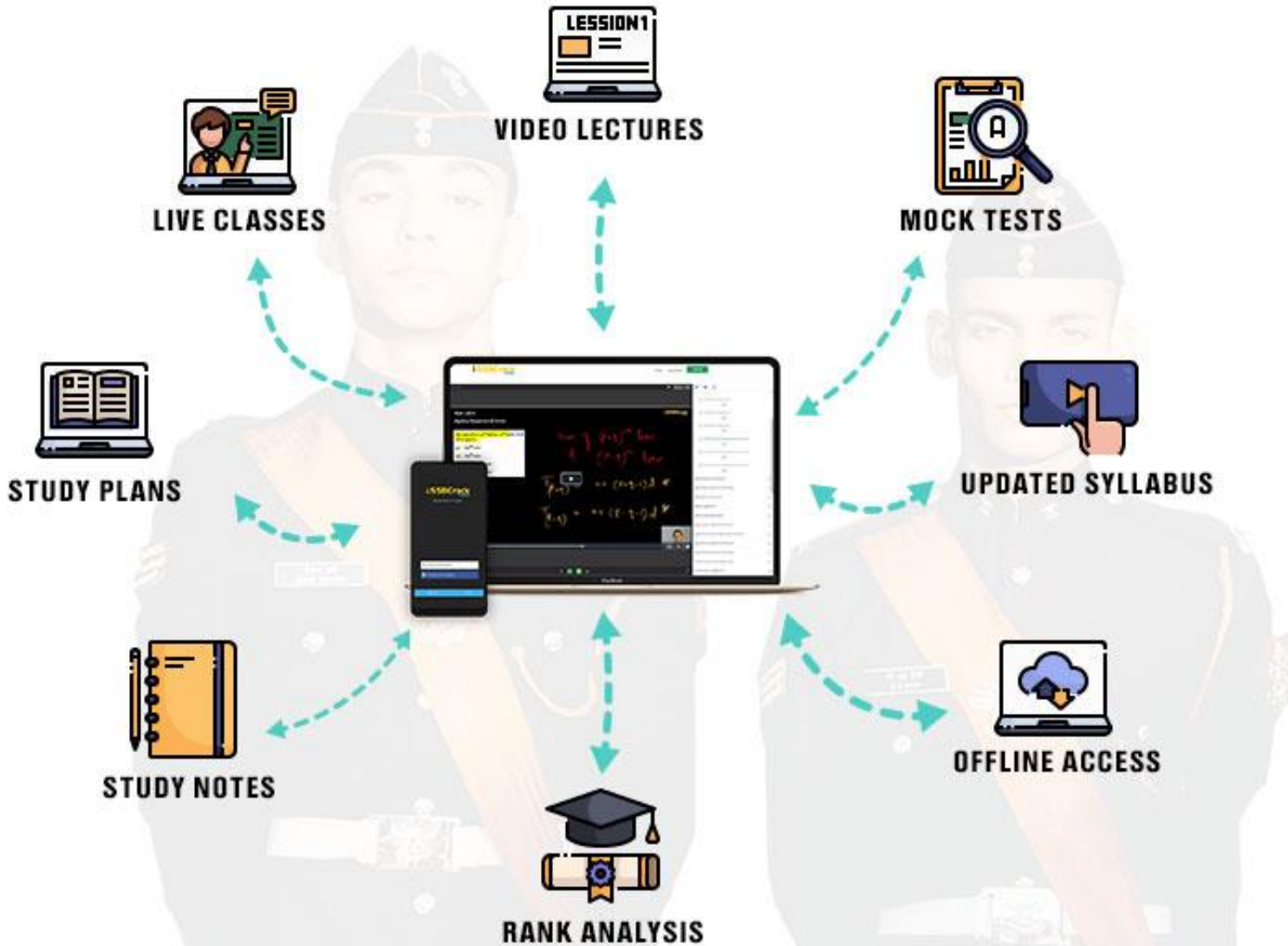

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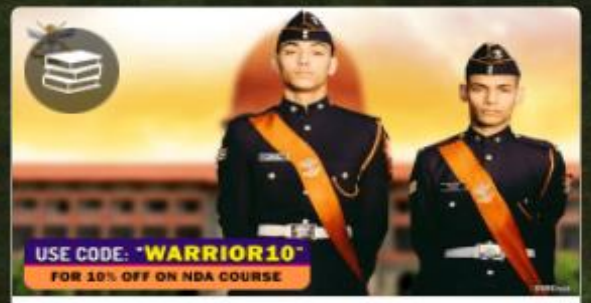

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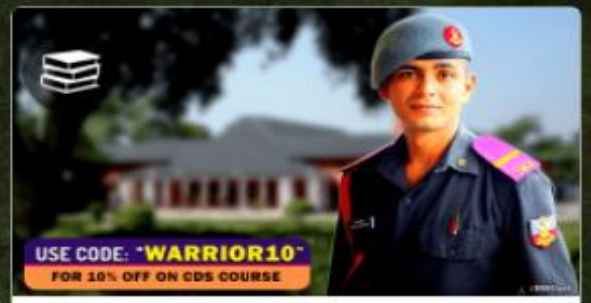

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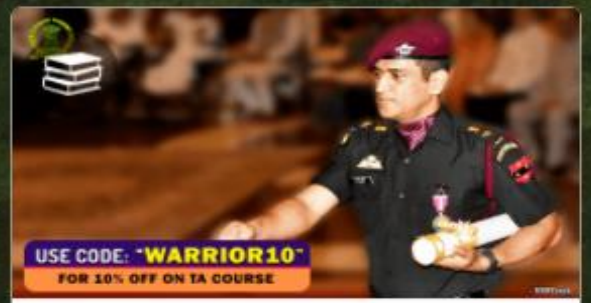

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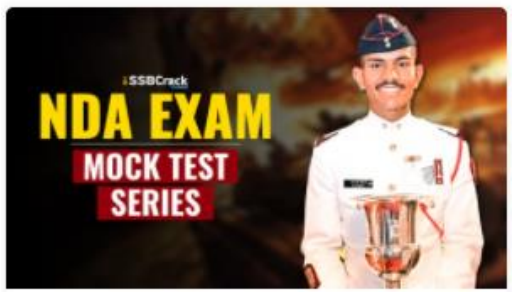

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CDS 2 2022

LIVE CLASS

TIME TABLE

DATE	TIME	SUBJECT
22 AUG 2022	6 PM TO 9 PM	Geography
24 AUG 2022	10 AM TO 1 PM	History
24 AUG 2022	2 PM TO 5 PM	English Part 1
24 AUG 2022	6 PM TO 9 PM	Maths Part 1
29 AUG 2022	2 PM TO 5 PM	English Part 2
29 AUG 2022	6 PM TO 9 PM	Maths Part 2
30 AUG 2022	10 AM to 1 PM	Polity
30 AUG 2022	2 PM TO 5 PM	English Part 3
30 AUG 2022	6 PM TO 9 PM	Maths Part 3
01 SEP 2022	10 AM TO 1 PM	Physics
03 SEP 2022	10 AM TO 1 PM	Current Affairs
03 SEP 2022	2 PM TO 5 PM	Defence Affairs
03 SEP 2022	6 PM TO 9 PM	Chemistry & Biology

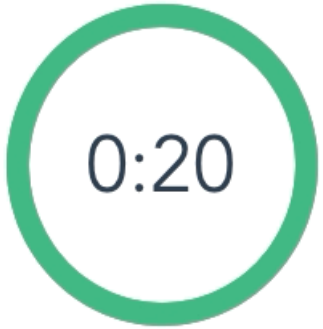
Q) If $\cos(x+y)=0$ and $\sin(x-y)=\frac{1}{2}$, where $x, y \in \left[0, \frac{\pi}{2}\right]$, then what is the value of $\cot(2x-y)$?

(a) 0

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

(c) 1

(d) 2



Q) If $\cos(x+y)=0$ and $\sin(x-y)=\frac{1}{2}$, where $x, y \in \left[0, \frac{\pi}{2}\right]$, then what is the value of $\cot(2x-y)$?

(a) 0

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

(c) 1

(d) 2

Ans: (b)

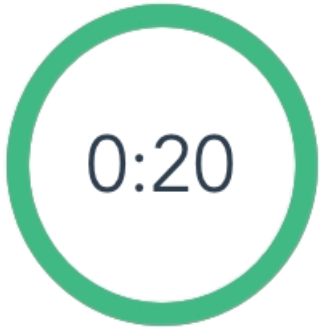
Q) $x + \frac{1}{x} = \frac{5}{2}$

then what is the value of the following

$$\frac{5x}{7x^2 - 3x + 7}$$

(a) $\frac{3}{7}$ (b) $\frac{5}{12}$

(c) $\frac{3}{14}$ (d) $\frac{10}{29}$



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$$\frac{5x}{7x^2 - 3x + 7}$$

(a) $\frac{3}{7}$ (b) $\frac{5}{12}$

(c) $\frac{3}{14}$ (d) $\frac{10}{29}$

Ans: (d)

CDS 2 2022 – Mathematics Part 2

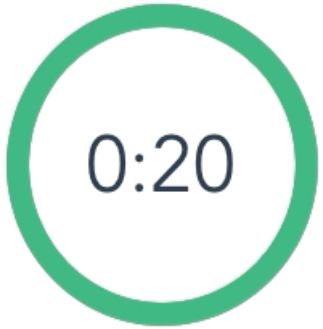
Q) If $\cos\theta + \sec\theta - 2 = 0$, where $0 \le \theta < \frac{\pi}{2}$, then what is the value of $\cos^4\theta + \sec^4\theta - 2$?

(a) -2

(b) -1

(c) 0

(d) 2



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(a) -2

(b) -1

(c) 0

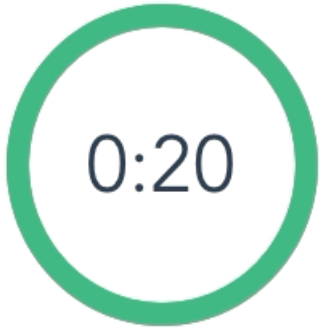
(d) 2

Ans: (c)

Q) $27^5 + 3^{13}$ is divisible by

(a) 8 (b) 10

(c) 12 (d) 21



Q) $27^5 + 3^{13}$ is divisible by

(a) 8 (b) 10

(c) 12 (d) 21

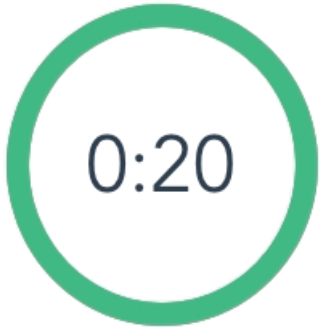
Ans: (b)

Q) What is the value of the following?

$$\frac{2\sin 68^\circ}{\cos 22^\circ} - \frac{2\cot 15^\circ}{5\tan 75^\circ} - \frac{3\tan 20^\circ \tan 40^\circ \tan 45^\circ \tan 50^\circ \tan 70^\circ}{5}$$

(a) -1 *(b)* 0

(c) 1 *(d)* 5



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$$\frac{2\sin 68^\circ}{\cos 22^\circ} - \frac{2\cot 15^\circ}{5\tan 75^\circ} - \frac{3\tan 20^\circ \tan 40^\circ \tan 45^\circ \tan 50^\circ \tan 70^\circ}{5}$$

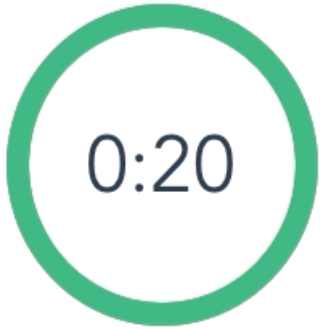
(a) -1 (b) 0

(c) 1 (d) 5

Ans: (c)

Q) A bicycle wheel of radius 35 cm makes n revolutions in moving 11 km. What is the value of n? (Take $\pi = \frac{22}{7}$)

(a) 500
(b) 1000
(c) 2500
(d) 5000



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(a) 500
(b) 1000
(c) 2500
(d) 5000

Ans: (d)

Q) If A, B, C, D are the angles of a cyclic quadrilateral, then what is the value of the following?

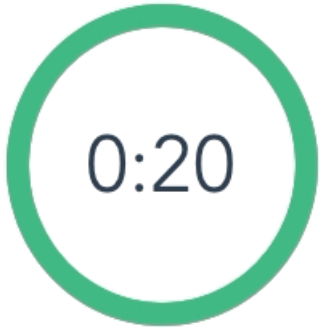
$$\sin\left(\frac{A+C}{2}\right)+\sin\left(\frac{B+D}{2}\right)$$

(a) 2

(b) 1

(c) 0

(d) –1



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$$\sin\left(\frac{A+C}{2}\right)+\sin\left(\frac{B+D}{2}\right)$$

(a) 2

(b) 1

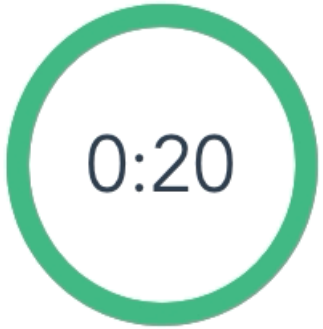
(c) 0

(d) −1

Ans: (a)

Q) If the surface area of a sphere is reduced to one-ninth of the area, its radius reduces to

(*a*) One-fourth
(*b*) One-third
(*c*) One-fifth
(*d*) One-ninth



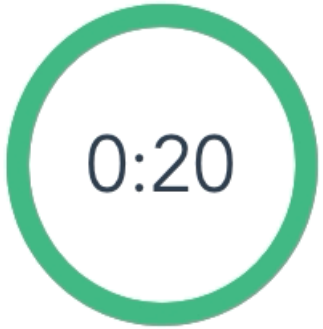
Q) If the surface area of a sphere is reduced to one-ninth of the area, its radius reduces to

(*a*) One-fourth
(*b*) One-third
(*c*) One-fifth
(*d*) One-ninth

Ans: (b)

Q) An arc of a circle subtends an angle π at the centre. If the length of the arc is 22 cm, then what is the radius of the circle? $\left(\text{Take } \pi = \frac{22}{7}\right)$

(*a*) 5 cm
(*b*) 7 cm
(*c*) 9 cm
(*d*) 11 cm



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(*a*) 5 cm
(*b*) 7 cm
(*c*) 9 cm
(*d*) 11 cm

Ans: (b)

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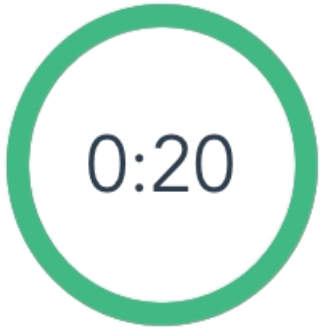
Q) If α and β are the roots of the quadratic equation $x^2 + \alpha x + \beta = 0$, where $\beta \neq 0$, then what is the value of $\alpha - \beta$?

(a) 4 *(b)* 3

(c) −1 *(d)* −3



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(a) 4 *(b)* 3

(c) −1 *(d)* −3

Ans: (b)

Q) Consider the following statements:

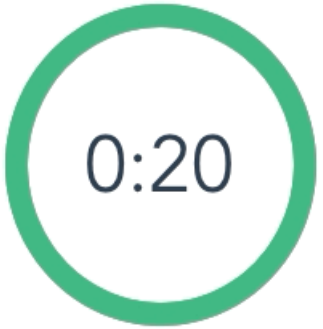
Two triangles are said to be congruent, if

1. Three angles of one triangle are equal to the corresponding three angles of the other triangle.
2. Three sides of one triangle are equal to the corresponding three sides of the other triangle.
3. Two sides and the included angle of one triangle are equal to the corresponding two sides and the included angles of the other triangle.
4. Two angles and the included side of one triangle are equal to the corresponding two angles and the included side of the other triangle.

Which of the above statements are correct?

(*a*) 1, 2 and 3 (*b*) 1, 3 and 4

(*c*) 1, 2 and 4 (*d*) 2, 3 and 4



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Which of the above statements are correct?

(*a*) 1, 2 and 3 (*b*) 1, 3 and 4

(*c*) 1, 2 and 4 (*d*) 2, 3 and 4

Ans: (d)

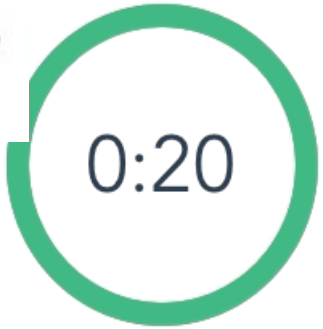
Q) A farmland is in the shape of a rhombus. The perimeter of the land is 100 m and the length of one of the diagonals is 40 m. The land is divided into four equal parts. What is the area of each part?

(a) 150 square metre

(b) 225 square metre

(c) 300 square metre

(d) 450 square metre



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(a) 150 square metre

(b) 225 square metre

(c) 300 square metre

(d) 450 square metre

Ans: (a)

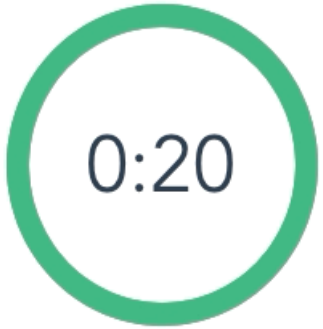
Q) ABC is a triangle right angled at B with $AC = 2BC$. If $\angle A = x$, then what is $\angle C$ equal to?

(a) $\frac{x}{2}$

(b) $2x$

(c) $\sqrt{2}\,x$

(d) $\sqrt{3}\,x$



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(a) $\frac{x}{2}$

(b) $2x$

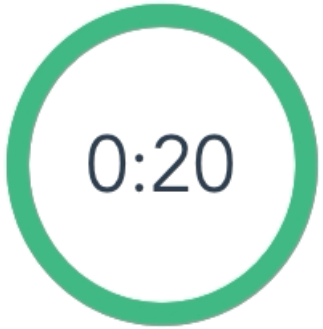
(c) $\sqrt{2}\,x$

(d) $\sqrt{3}\,x$

Ans: (b)

Q) From a solid cylinder whose height is 8 cm and of base radius 6 cm, a conical cavity of height 8 cm and of base radius 6 cm is formed by hollowing out. What is the inner surface area of the cavity?

(*a*) 6π square cm
(*b*) 8π square cm
(*c*) 10π square cm
(*d*) 60π square cm



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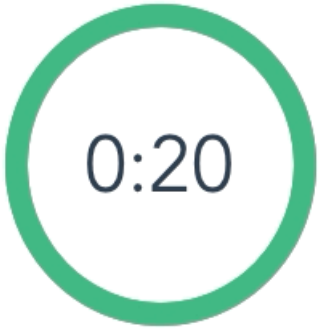
(*a*) 6π square cm
(*b*) 8π square cm
(*c*) 10π square cm
(*d*) 60π square cm

Ans: (d)

Q) If $a + b = 2c$, then what is the value of $\frac{a}{a-c} + \frac{c}{b-c}$?

$(a)\ -1$ $(b)\ 0$ $(c)\ 1$ $(d)\ 2$



Q) If $a + b = 2c$, then what is the value of $\frac{a}{a-c} + \frac{c}{b-c}$?

$(a)\ -1$ $(b)\ 0$ $(c)\ 1$ $(d)\ 2$

Ans: (c)

Q) Consider the following statements in respect of three straight lines A, B and C on a plane:

1. If A and C are parallel and B and C are parallel; then A and B are parallel.
2. If A is perpendicular to C and B is perpendicular to C; then A and B are parallel.
3. If the acute angle between A and C is equal to the acute angle between B and C; then A and B are parallel.

Which of the above statements are correct?

(*a*) 1, 2 and 3 (*b*) 1 and 2 only

(*c*) 1 and 3 only (*d*) 2 and 3 only

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1. If A and C are parallel and B and C are parallel; then A and B are parallel.
2. If A is perpendicular to C and B is perpendicular to C; then A and B are parallel.
3. If the acute angle between A and C is equal to the acute angle between B and C; then A and B are parallel.

Which of the above statements are correct?

(*a*) 1, 2 and 3 (*b*) 1 and 2 only

(*c*) 1 and 3 only (*d*) 2 and 3 only

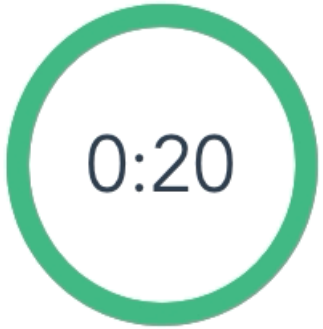
Ans: (b)

Q) What is the value of the following?

$$\frac{(5\cdot4)^3 - 0\cdot064}{(5\cdot4)^2 + 2\cdot16 + 0\cdot16}$$

(a) 4 (b) 4·4

(c) 5 (d) 5·4



Q) What is the value of the following?

$$\frac{(5\cdot4)^3 - 0\cdot064}{(5\cdot4)^2 + 2\cdot16 + 0\cdot16}$$

(a) 4 (b) 4·4

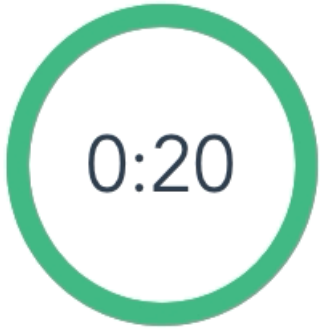
(c) 5 (d) 5·4

Ans: (c)

Q) In a triangle ABC, $AB = 16$ cm, $AC = 12$ cm and AD is the bisector of $\angle A$. If $BD = 4$ cm, then what is CD equal to?

(a) 2 cm (b) 2·5 cm

(c) 3 cm (d) 3·5 cm



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(a) 2 cm (b) 2·5 cm

(c) 3 cm (d) 3·5 cm

Ans: (c)

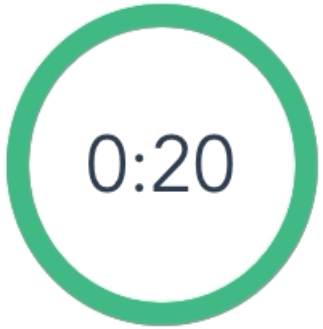
Q) If $A : B = 3 : 4$, then what is the value of the expression $\left(\frac{3A^2 + 4B}{3A - 4B^2}\right)$?

(a) $\frac{43}{55}$

(b) $-\frac{43}{55}$

(c) $\frac{47}{55}$

(d) Cannot be determined



Q) If $A : B = 3 : 4$, then what is the value of the expression $\left(\frac{3A^2 + 4B}{3A - 4B^2}\right)$?

(a) $\frac{43}{55}$

(b) $-\frac{43}{55}$

(c) $\frac{47}{55}$

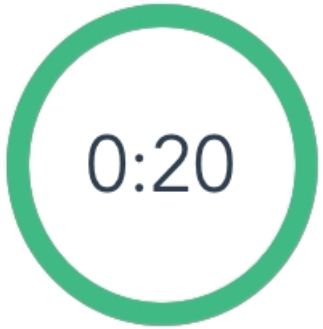
(d) Cannot be determined

Ans: (d)

Q) The diagonals of a rhombus are of length 20 cm and 48 cm
What is the length of a side of the rhombus?

(*a*) 13 cm (*b*) 26 cm

(*c*) 36 cm (*d*) 39 cm



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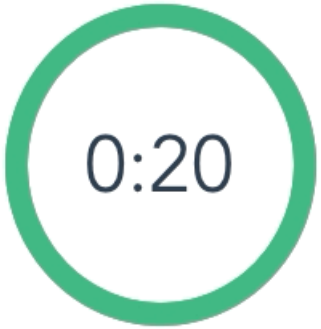
What is the length of a side of the rhombus?

(*a*) 13 cm
(*b*) 26 cm
(*c*) 36 cm
(*d*) 39 cm

Ans: (b)

Q) What is the value of $\frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}-\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$?

$(a)\ -2\sqrt{15}$ $(b)\ 2\sqrt{15}$ $(c)\ \sqrt{15}$ $(d)\ -\sqrt{15}$

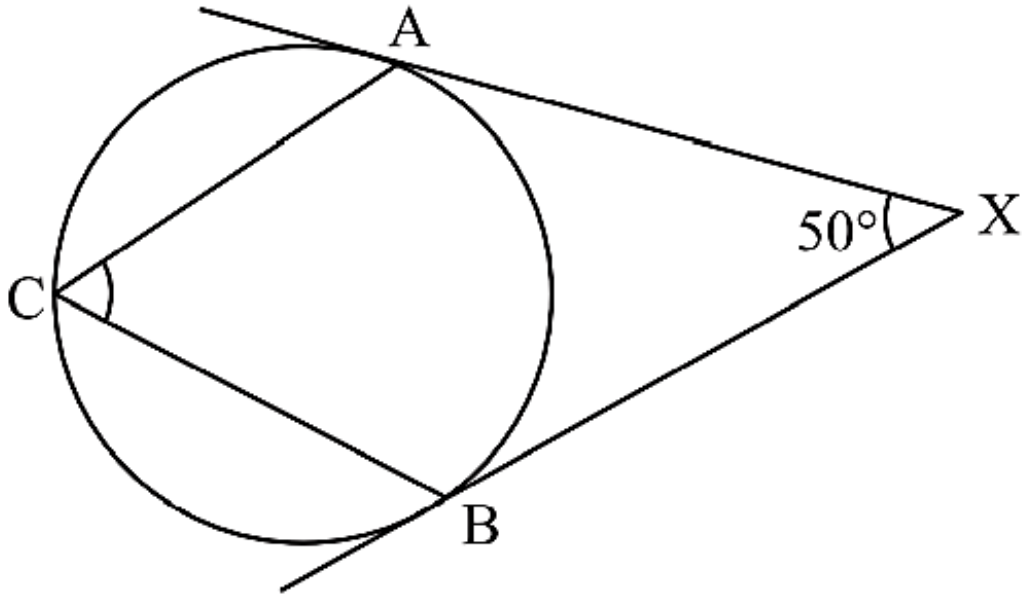


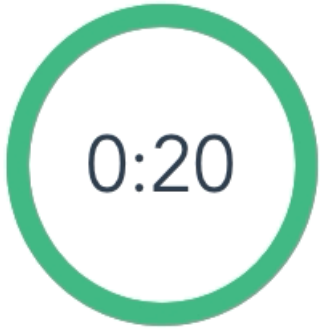
Q) What is the value of $\frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}} - \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$?

$(a)\ -2\sqrt{15}$ $(b)\ 2\sqrt{15}$ $(c)\ \sqrt{15}$ $(d)\ -\sqrt{15}$

Ans: (a)

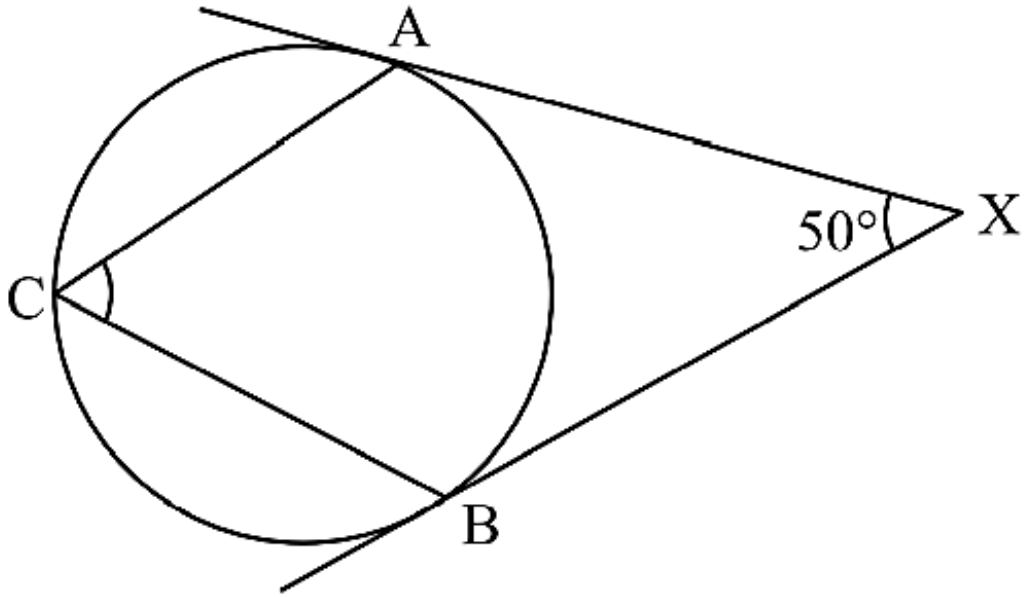
Q) In the figure given below, XA and XB are two tangents to a circle. If $\angle AXB = 50°$ and AC is parallel to XB, then what is $\angle ACB$ equal to?





(a) 70° (b) 65° (c) 60° (d) 55°

Q) In the figure given below, XA and XB are two tangents to a circle. If $\angle AXB = 50°$ and AC is parallel to XB, then what is $\angle ACB$ equal to?



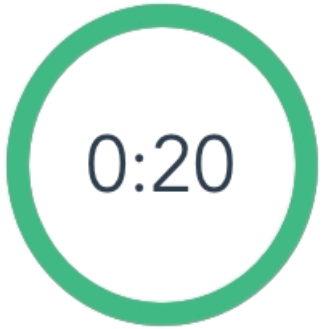
(*a*) 70° (*b*) 65° (*c*) 60° (*d*) 55°

Ans: (b)

Q) The area of a regular hexagon of side 'a' is equal to

(a) $\frac{\sqrt{2}}{3}a^2$ square units (b) $\frac{3\sqrt{3}}{2}a^2$ square units

(c) $\frac{1}{3}a^2$ square units (d) $\frac{\sqrt{3}}{2}a^2$ square units



Q) The area of a regular hexagon of side 'a' is equal to

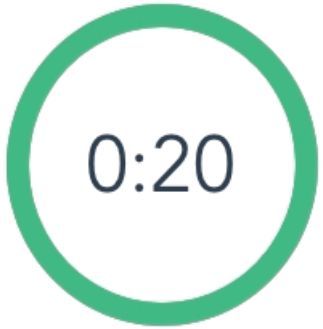
(a) $\frac{\sqrt{2}}{3}a^2$ square units (b) $\frac{3\sqrt{3}}{2}a^2$ square units

(c) $\frac{1}{3}a^2$ square units (d) $\frac{\sqrt{3}}{2}a^2$ square units

Ans: (b)

Q) The areas of two circular fields are in the ratio 16 : 49. If the radius of the bigger field is 14 m, then what is the radius of the smaller field?

(*a*) 4 m (*b*) 8 m (*c*) 9 m (*d*) 10 m



Q) The areas of two circular fields are in the ratio 16 : 49. If the radius of the bigger field is 14 m, then what is the radius of the smaller field?

(*a*) 4 m (*b*) 8 m (*c*) 9 m (*d*) 10 m

Ans: (b)

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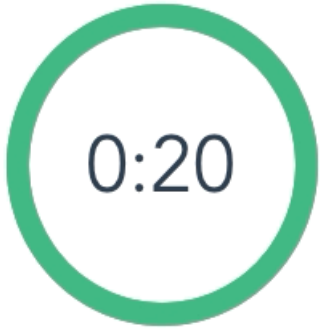
Q) If $x = 7 + 4\sqrt{3}$, then what is the value of $\sqrt{x} + \frac{1}{\sqrt{x}}$?

(a) 1 (b) 2

(c) 3 (d) 4



Q) If $x = 7 + 4\sqrt{3}$, then what is the value of $\sqrt{x} + \frac{1}{\sqrt{x}}$?

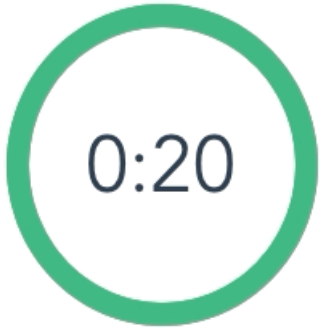
(a) 1 (b) 2

(c) 3 (d) 4

Ans: (d)

Q) What is the value of $\sin x \sqrt{\frac{1}{1+\cos x}+\frac{1}{1-\cos x}}$?

(a) $\sqrt{2}$ (b) $2\sqrt{2}$ (c) $\sqrt{2}\tan x$ (d) 0



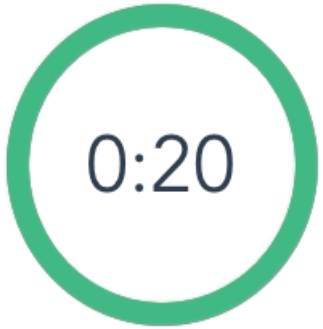
Q) What is the value of $\sin x \sqrt{\frac{1}{1+\cos x}+\frac{1}{1-\cos x}}$?

(a) $\sqrt{2}$ (b) $2\sqrt{2}$ (c) $\sqrt{2}\tan x$ (d) 0

Ans: (a)

Q) If a triangle has sides 5, 13 and 12 units and θ is the acute angle of the triangle, then what is the value of $(\sin\theta + \cos\theta)$?

(a) $\frac{5}{13}$ (b) $\frac{7}{13}$ (c) $\frac{12}{13}$ (d) $\frac{17}{13}$



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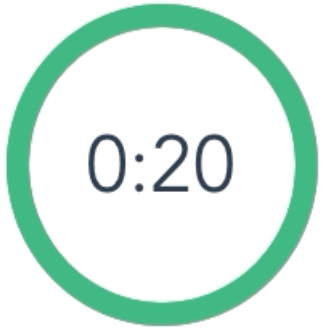
(a) $\frac{5}{13}$ (b) $\frac{7}{13}$ (c) $\frac{12}{13}$ (d) $\frac{17}{13}$

Ans: (d)

Q) A closed polygon has six sides one of its angles is 30° greater than each of the other five equal angles. What is the value of one of the equal angles?

(*a*) 55°
(*b*) 115°
(*c*) 150°
(*d*) 175°



Q) A closed polygon has six sides one of its angles is 30° greater than each of the other five equal angles. What is the value of one of the equal angles?

(*a*) 55° (*b*) 115°

(*c*) 150° (*d*) 175°

Ans: (b)

Q) Which one of the following is not correct?

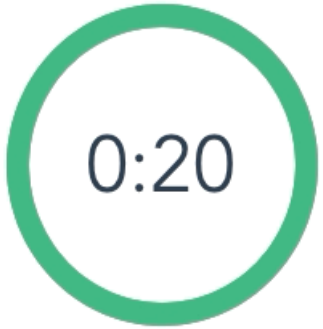
The proportion of various items in a pie diagram is proportional to the

(*a*) Areas of slices

(*b*) Angles of slices

(*c*) Lengths of the curved arcs of the slices

(*d*) Perimeters of the slices



Q) Which one of the following is not correct?

The proportion of various items in a pie diagram is proportional to the

(*a*) Areas of slices

(*b*) Angles of slices

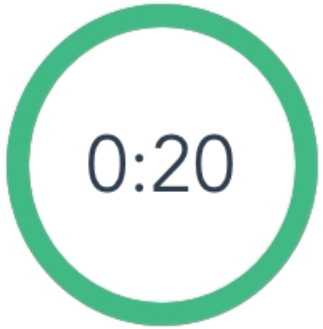
(*c*) Lengths of the curved arcs of the slices

(*d*) Perimeters of the slices

Ans: (d)

Q) If $5x^3 + 5x^2 - 6x + 9$ is divided by $(x + 3)$, then the remainder is

(a) 135 (b) -135 (c) 63 (d) -63



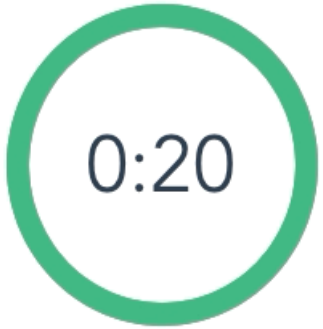
Q) If $5x^3 + 5x^2 - 6x + 9$ is divided by $(x+3)$, then the remainder is

(a) 135 (b) -135 (c) 63 (d) -63

Ans: (d)

Q) What is the value of $\frac{(443+547)^2+(443-547)^2}{443\times443+547\times547}$?

(*a*) 0 (*b*) 1 (*c*) 2 (*d*) 3



Q) What is the value of $\frac{(443+547)^2+(443-547)^2}{443\times 443+547\times 547}$?

(a) 0 (b) 1 (c) 2 (d) 3

Ans: (c)

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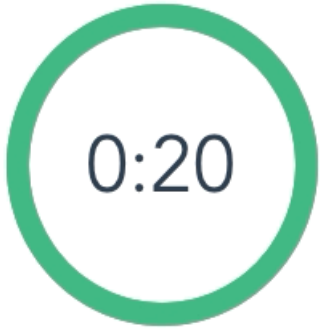
Q) If $A = \dfrac{\sin 45^\circ - \sin 30^\circ}{\cos 45^\circ + \cos 60^\circ}$ and $B = \dfrac{\sec 45^\circ - \tan 45^\circ}{\operatorname{cosec} 45^\circ + \cot 45^\circ}$, then which one of the following is correct?

(a) $A = B$

(b) $A > B > 0$

(c) $A < B$

(d) $B < A < 0$



Q) If $A = \dfrac{\sin 45° - \sin 30°}{\cos 45° + \cos 60°}$ and $B = \dfrac{\sec 45° - \tan 45°}{\text{cosec } 45° + \cot 45°}$, then which one of the following is correct?

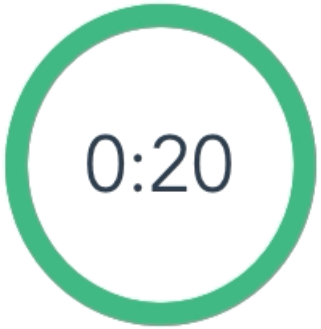
(a) $A = B$ (b) $A > B > 0$

(c) $A < B$ (d) $B < A < 0$

Ans: (a)

Q) If α and β are the roots of the equation $x^2 + px + q = 0$, then what is $\alpha^2 + \beta^2$ equal to?

(a) $p^2 - 2q$ (b) $q^2 - 2p$ (c) $p^2 + 2q$ (d) $q^2 - q$



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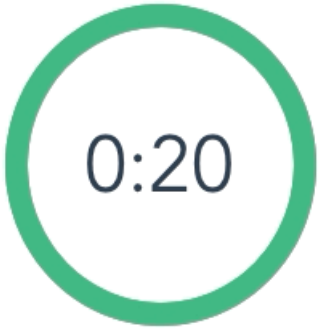
(a) $p^2 - 2q$ (b) $q^2 - 2p$ (c) $p^2 + 2q$ (d) $q^2 - q$

Ans: (a)

CDS 2 2022 – Mathematics Part 2

Q) What is $\sqrt{\frac{0.064 \times 6.25}{0.081 \times 4.84}}$ equal to?

(a) $\frac{10}{99}$ (b) $\frac{100}{99}$ (c) 9 (d) 99



CDS 2 2022 – Mathematics Part 2

Q) What is $\sqrt{\frac{0.064 \times 6.25}{0.081 \times 4.84}}$ equal to?

(a) $\frac{10}{99}$ (b) $\frac{100}{99}$ (c) 9 (d) 99

Ans: (b)

Q) Consider the following frequency distribution:

x	Frequency	Cumulative frequency
1	8	8
2	10	18
3	f_1	29
4	f_2	45

What are the value of f_1 and f_2 respectively?

(*a*) 10 and 17
(*b*) 17 and 10
(*c*) 11 and 16
(*d*) 16 and 11

Q) Consider the following frequency distribution:

x	Frequency	Cumulative frequency
1	8	8
2	10	18
3	f_1	29
4	f_2	45

What are the value of f_1 and f_2 respectively?

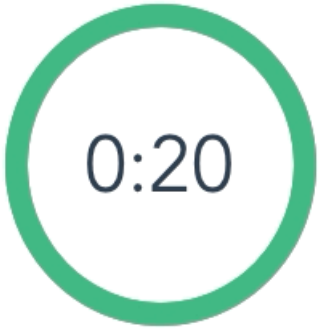
(*a*) 10 and 17
(*b*) 17 and 10
(*c*) 11 and 16
(*d*) 16 and 11

Ans: (c)

Q) The product of two non-zero expressions is $(x + y + z)p^3$. If their H.C.F. is p^2, then their L.C.M. is

(a) $(x + y + z)$ (b) $(x + y + z)p^2$

(c) $(x + y + z)p^5$ (d) $(x + y + z)p$



Q) The product of two non-zero expressions is $(x + y + z)p^3$. If their H.C.F. is p^2, then their L.C.M. is

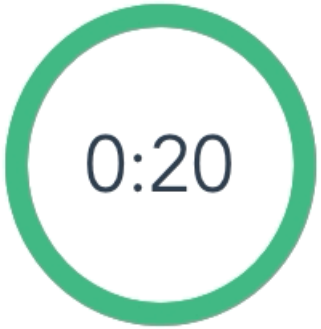
(a) $(x + y + z)$ (b) $(x + y + z)p^2$

(c) $(x + y + z)p^5$ (d) $(x + y + z)p$

Ans: (d)

Q) If $x = a\cos\theta + b\sin\theta$ and $y = a\sin\theta - b\cos\theta$, then what is $x^2 + y^2$ equal to?

(a) $2ab$ (b) $a + b$ (c) $a^2 + b^2$ (d) $a^2 - b^2$



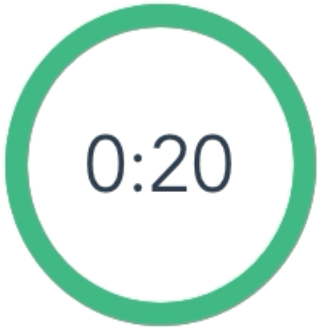
Q) If $x = a\cos\theta + b\sin\theta$ and $y = a\sin\theta - b\cos\theta$, then what is $x^2 + y^2$ equal to?

$(a)\ 2ab$ $(b)\ a + b$ $(c)\ a^2 + b^2$ $(d)\ a^2 - b^2$

Ans: (c)

Q) A fruit seller has a certain number of mangoes of which 5% are rotten. He sells 75% of the remainder and he is left with 95 mangoes. How many mangoes did he have originally?

(*a*) 500 (*b*) 450 (*c*) 400 (*d*) 350



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(*a*) 500 (*b*) 450 (*c*) 400 (*d*) 350

Ans: (c)

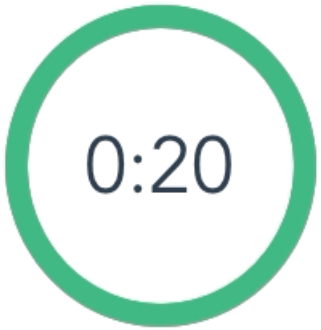
Q) If

$$\frac{x-y}{x\sqrt{y}+y\sqrt{x}} = \frac{1}{\sqrt{x}};\ (x>0,\ y>0)$$

then what is the value of $\frac{x}{y}$?

(a) 1 (b) 2

(c) 4 (d) 8



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then what is the value of $\frac{x}{y}$?

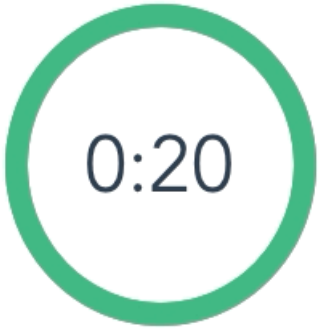
(a) 1 (b) 2

(c) 4 (d) 8

Ans: (c)

Q) In an examination, 35% students failed in Hindi, 45% students failed in English and 20% students failed in both the subjects. What is the percentage of students passing in both the subjects?

(*a*) 0 (*b*) 20 (*c*) 30 (*d*) 40



Q) In an examination, 35% students failed in Hindi, 45% students failed in English and 20% students failed in both the subjects. What is the percentage of students passing in both the subjects?

(*a*) 0 (*b*) 20 (*c*) 30 (*d*) 40

Ans: (d)

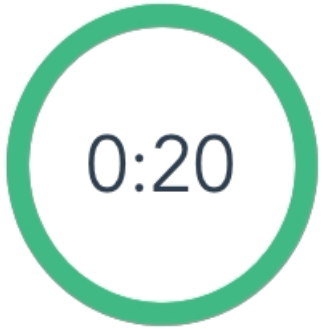
Q) If

$$a+b=2, \quad \frac{1}{a}+\frac{1}{b}=2$$

then what is the value of a^3+b^3?

(a) 2 (b) 4

(c) 6 (d) 8



Q) If

$$a+b=2, \quad \frac{1}{a}+\frac{1}{b}=2$$

then what is the value of a^3+b^3?

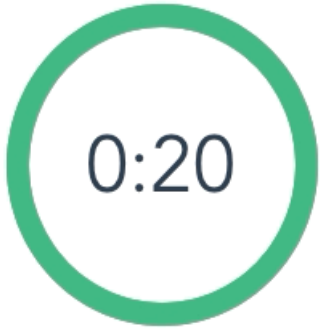
(a) 2 (b) 4

(c) 6 (d) 8

Ans: (a)

Q) What is the value of θ which satisfies the equation $\cos\theta + \tan\theta = 1$?

(*a*) $0°$ (*b*) $30°$ (*c*) $45°$ (*d*) $60°$



Q) What is the value of θ which satisfies the equation $\cos\theta + \tan\theta = 1$?

(*a*) $0°$ (*b*) $30°$ (*c*) $45°$ (*d*) $60°$

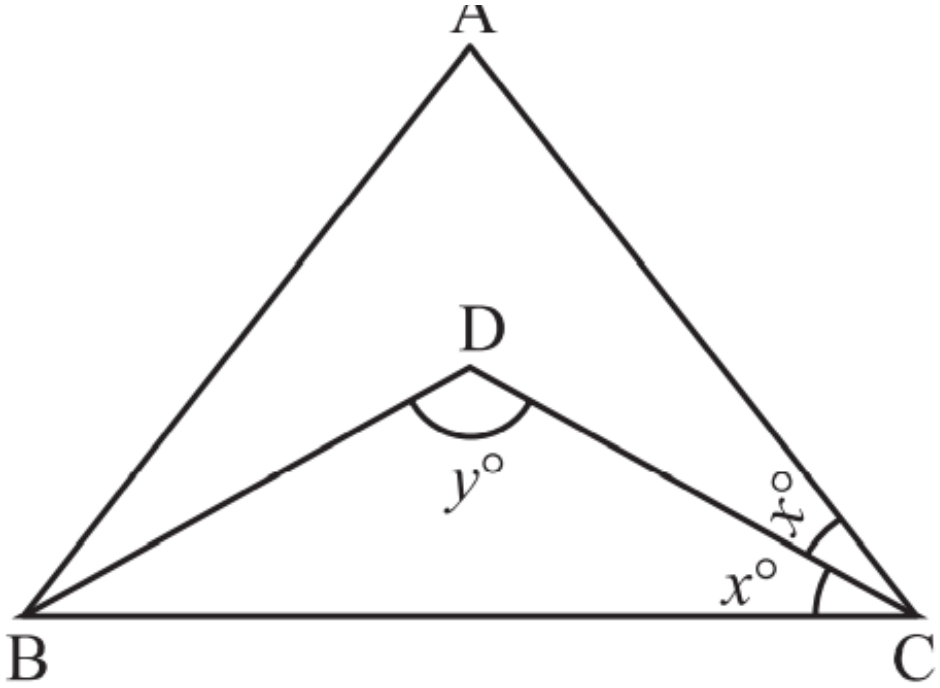
Ans: (a)

Q) In the figure given below, $\angle A = 80°$ and $\angle ABC = 60°$. BD and CD bisect angles B and C respectively. What are the values of x and y respectively?

(*a*) 10 and 130 (*b*) 10 and 125

(*c*) 20 and 130 (*d*) 20 and 125

0:20



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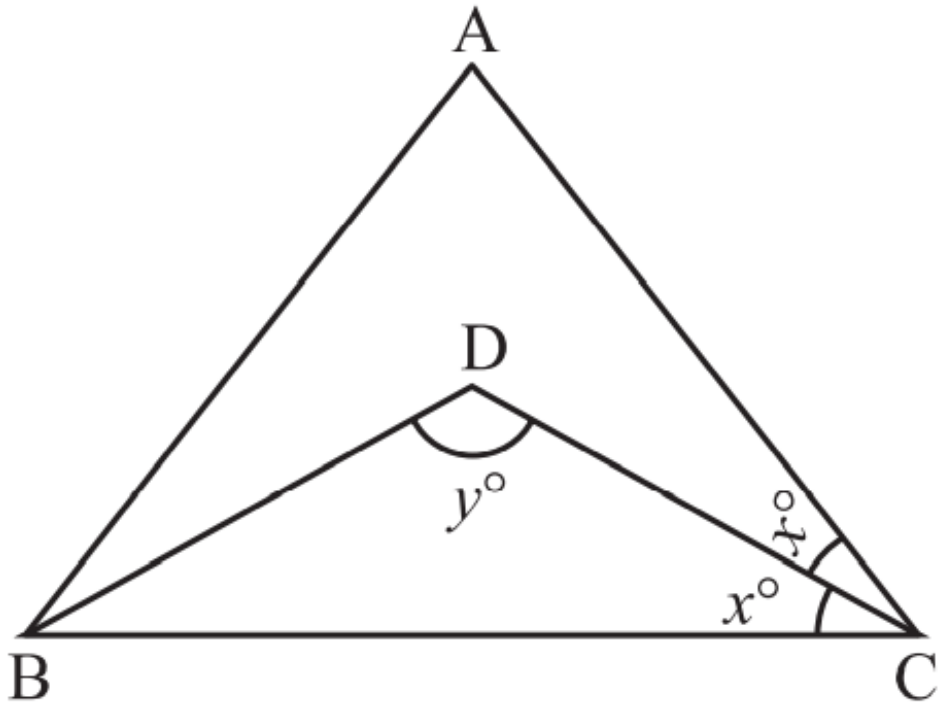
(*a*) 10 and 130 (*b*) 10 and 125

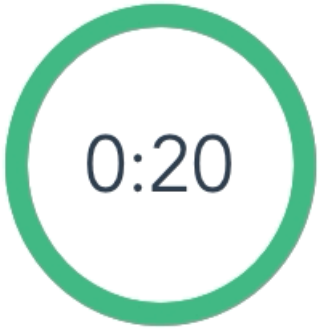
(*c*) 20 and 130 (*d*) 20 and 125



Ans: (c)

Q) Five years ago, Ram was three times as old as Shyam. Four years from now, Ram will be only twice as old as Shyam. What is the present age of Ram?

(*a*) 30 years
(*b*) 32 years
(*c*) 36 years
(*d*) 40 years



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(*a*) 30 years
(*b*) 32 years
(*c*) 36 years
(*d*) 40 years

Ans: (b)

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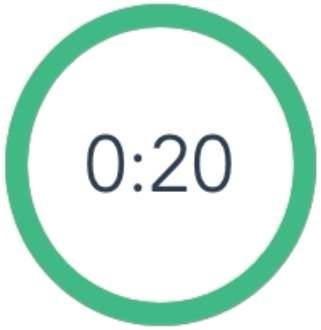
Q) What is $\dfrac{(x-y)(y-z)(z-x)}{(x-y)^3+(y-z)^3+(z-x)^3}$ equal to?

(a) $-\dfrac{1}{3}$ (b) $\dfrac{1}{3}$ (c) 3 (d) -3



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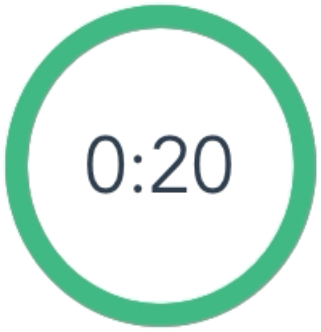
(a) $-\dfrac{1}{3}$ (b) $\dfrac{1}{3}$ (c) 3 (d) -3

Ans: (b)

Q) A student has to secure 40% of marks to pass an examination. He gets only 45 marks and fails by 5 marks. The maximum marks are

(*a*) 120 (*b*) 125 (*c*) 130 (*d*) 150



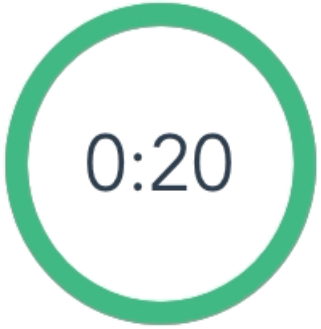
Q) A student has to secure 40% of marks to pass an examination. He gets only 45 marks and fails by 5 marks. The maximum marks are

(*a*) 120 (*b*) 125 (*c*) 130 (*d*) 150

Ans: (b)

Q) If $(x + 3)$ is a factor of $x^3 + 3x^2 + 4x + k$, then what is the value of k?

(a) 12 (b) 24 (c) 36 (d) 72



Q) If $(x + 3)$ is a factor of $x^3 + 3x^2 + 4x + k$, then what is the value of k?

(a) 12 (b) 24 (c) 36 (d) 72

Ans: (a)

CDS 2 2022 – Mathematics Part 2

Q) Consider the following statements :

1. If two chords AB and AC of a circle are equal, then the centre of the circle lies on the angle bisector of angle CAB.
2. If two concentric circles are intersected by a line at A, B, C and D respectively, then $AC = BD$.

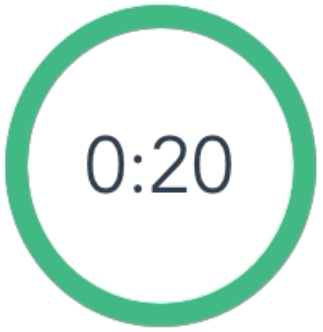
Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2



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2. If two concentric circles are intersected by a line at A, B, C and D respectively, then $AC = BD$.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Ans: (c)

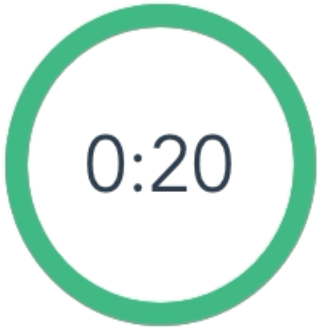
Q) The system of equations $2x + 4y = 6$ and $4x + 8y = 8$ is

(*a*) Consistent with a unique solution

(*b*) Consistent with infinitely many solutions

(*c*) Inconsistent

(*d*) None of the above



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(*a*) Consistent with a unique solution

(*b*) Consistent with infinitely many solutions

(*c*) Inconsistent

(*d*) None of the above

Ans: (c)

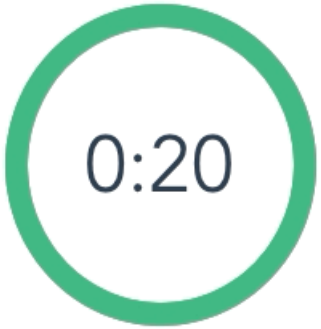
Q) Which one of the following is correct in respect of a right angled triangle ?

(*a*) Its orthocentre lies inside the triangle

(*b*) Its orthocentre lies outside the triangle

(*c*) Its orthocentre lies on the triangle

(*d*) It has no orthocentre



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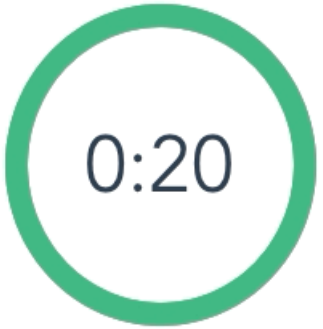
(*d*) It has no orthocentre

Ans: (c)

Q) If $\cos\theta_1 + \cos\theta_2 + \cos\theta_3 = 3$, then what is $\sin\theta_1 + \sin\theta_2 + \sin\theta_3$ equal to?

(*a*) 0 (*b*) 1 (*c*) 2 (*d*) 3



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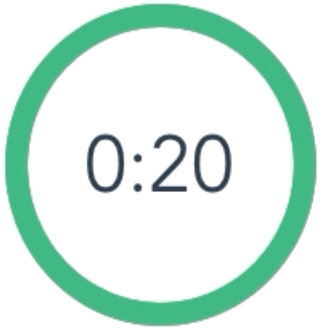
(*a*) 0 (*b*) 1 (*c*) 2 (*d*) 3

Ans: (a)

Q) What is the area of the largest circular disc cut from a square of side $\frac{2}{\sqrt{\pi}}$ units?

(*a*) π square units
(*b*) 1 square unit
(*c*) π^2 square units
(*d*) 2 square units



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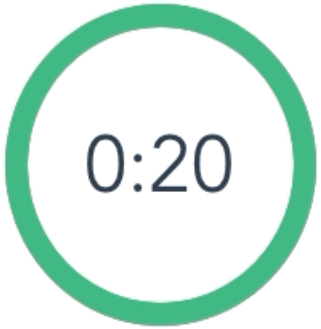
(d) 2 square units

Ans: (b)

Q) If the roots of the equation $px^2 + x + r = 0$ are reciprocal to each other, then which one of the following is correct?

$(a)\ p = 2r$ $(b)\ p = r$ $(c)\ 2p = r$ $(d)\ p = 4r$



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Ans: (b)

Q) Consider the following statements :

1. The sum of any two sides of a triangle is less than twice the median drawn to the third side.
2. The perimeter of a triangle is greater than the sum of the three medians.

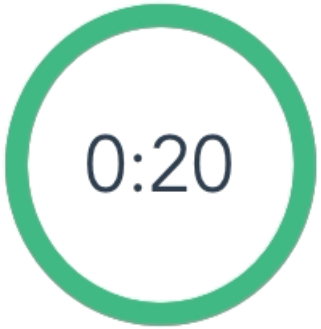
Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2



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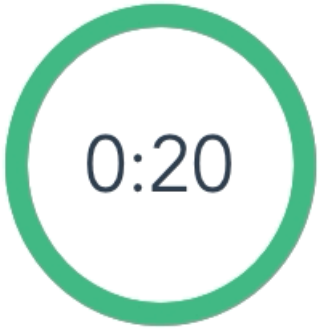
(c) Both 1 and 2

(d) Neither 1 nor 2

Ans: (b)

Q) In a 100 m race, A runs at 6 km/hr. If A gives B a start of 8 m and still beats him by 9 seconds, what is the speed of B?

(a) 4.6 km/hr
(b) 4.8 km/hr
(c) 5.2 km/hr
(d) 5.4 km/hr



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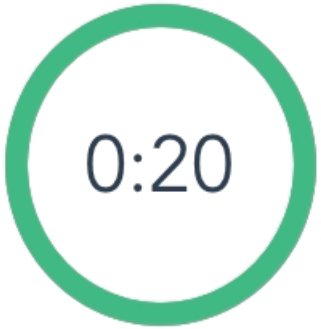
(c) 5.2 km/hr
(d) 5.4 km/hr

Ans: (b)

Q) $\frac{1}{25}$ of the students who registered did not appear for the examination, $\frac{11}{20}$ of those who appeared passed. If the number of registered students is 2000, the number who passed is

(*a*) 1920 (*b*) 1056 (*c*) 1020 (*d*) 864



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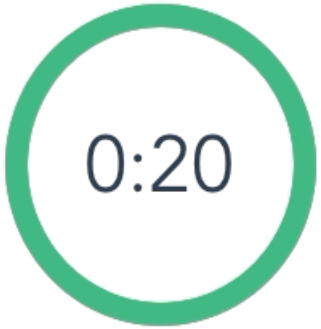
(*a*) 1920 (*b*) 1056 (*c*) 1020 (*d*) 864

Ans: (b)

Q) If $a\%$ of $a + b\%$ of $b = 2\%$ of ab, then what percent of a is b?

(a) 50%
(b) 75%
(c) 100%
(d) Cannot be determined



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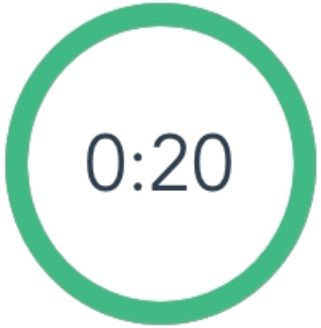
(a) 50%
(b) 75%
(c) 100%
(d) Cannot be determined

Ans: (c)

Q) The radius and slant height of a right circular cone are 5 cm and 13 cm respectively. What is the volume of the cone?

(*a*) $100\pi \text{ cm}^3$ (*b*) $50\pi \text{ cm}^3$

(*c*) $65\pi \text{ cm}^3$ (*d*) $169\pi \text{ cm}^3$



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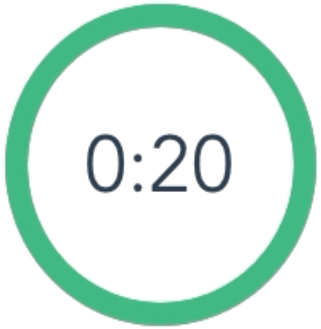
Ans: (a)

Q) What is $\cot 1^\circ \cot 23^\circ \cot 45^\circ \cot 67^\circ \cot 89^\circ$ equal to?

(a) 0 (b) 1 (c) $\frac{1}{2}$ (d) $\frac{1}{3}$



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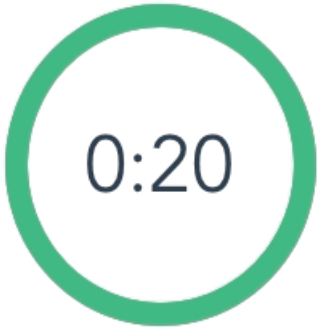
$(a)\ 0$ $(b)\ 1$ $(c)\ \frac{1}{2}$ $(d)\ \frac{1}{3}$

Ans: (b)

Q) If $\cos x + \cos^2 x = 1$, then what is $\sin^2 x + \sin^4 x$ equal to?

(a) 1 (b) 1.5 (c) 2 (d) 3



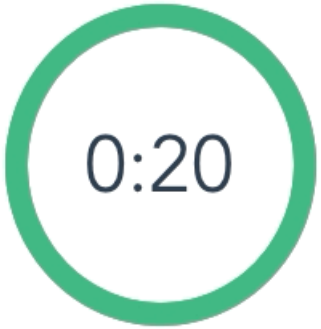
Q) If $\cos x + \cos^2 x = 1$, then what is $\sin^2 x + \sin^4 x$ equal to?

(a) 1 (b) 1.5 (c) 2 (d) 3

Ans: (a)

Q) The arithmetic mean of two numbers is 10 and their geometric mean is 8. What are the two numbers?

(*a*) 15, 5 (*b*) 12, 8 (*c*) 16, 4 (*d*) 18, 2



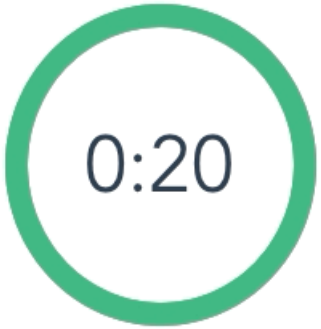
Q) The arithmetic mean of two numbers is 10 and their geometric mean is 8. What are the two numbers?

(*a*) 15, 5 (*b*) 12, 8 (*c*) 16, 4 (*d*) 18, 2

Ans: (c)

Q) '*A*' is thrice as good a workman as '*B*' and takes 10 days less to do a piece of work than '*B*' takes. The number of days taken by '*B*' alone to finish the work is

(*a*) 12 (*b*) 15 (*c*) 20 (*d*) 30



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(a) 12 (b) 15 (c) 20 (d) 30

Ans: (b)

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22 AUG 2022	6 PM TO 9 PM	Geography
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24 AUG 2022	6 PM TO 9 PM	Maths Part 1
29 AUG 2022	2 PM TO 5 PM	English Part 2
29 AUG 2022	6 PM TO 9 PM	Maths Part 2
30 AUG 2022	10 AM to 1 PM	Polity
30 AUG 2022	2 PM TO 5 PM	English Part 3
30 AUG 2022	6 PM TO 9 PM	Maths Part 3
01 SEP 2022	10 AM TO 1 PM	Physics
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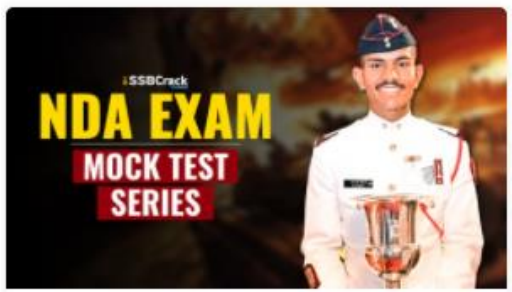

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