MATHS

BOOKS - X BOARDS

QUESTION PAPER 2022 TERM 1 SET 1 STANDARD

Section A

1. The exponent of 5 in the prime factorisation of 3750 is

A. 3

B. 4

C. 5

D. 6

Answer:

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2. The graph of a polynomial P(x) cuts the x-axis at 3 points and touches it at 2 other points. The number of zeroes of P(x) is

A. 1

B. 2

C. 3

D. 5

Answer:

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3. The value of x and y satisfying the two equations $32x + 33y = 34, 33x + 32y = 31$ respectively are:

A. $-1, 2$

B. $-1, 4$

C. $1, \ -2$

D. $-1, \ -4$

Answer:

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4. If $A\left(3, \sqrt{3}\right)$, B(0,0) and C(3,k) are the three vertices of an equilateral triangle ABC, then the value of k is

A. 2

B. -3

C. $\sqrt{3}$

D. $-\sqrt{2}$

Answer:

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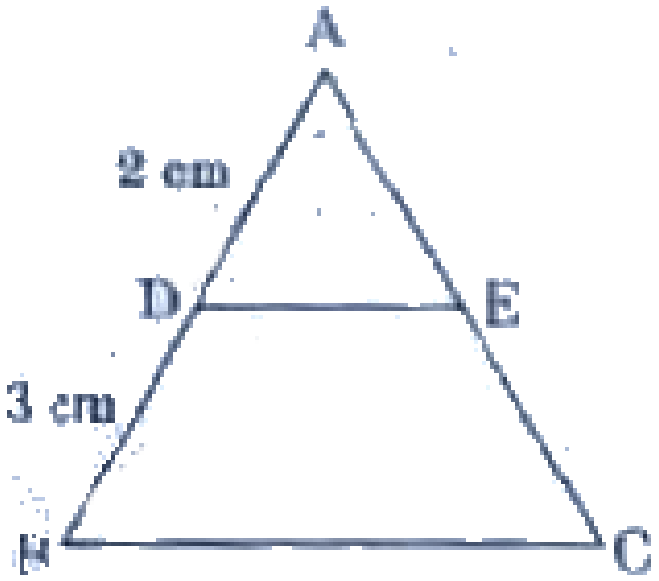
5. In figure, $DE \| BC, AD = 2cm$ and $BD = 3cm,$

then ar (ΔABC) : ar (ΔADE), is equal to



A. $4:25$

B. $2:3$

C. $9:4$

D. $25:4$

Answer:

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6. If $\cot\theta = \frac{1}{\sqrt{3}}$, the value of $\sec^2\theta + \text{cosec}^2\theta$ is

A. 1

B. $\frac{40}{9}$

C. $\frac{38}{9}$

D. $5\frac{1}{3}$

Answer:

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7. The area of a quadrant of a circle where the circumference of circle is 176 m is

A. $2464m^2$

B. $1232m^2$

C. $616m^2$

D. $308m^2$

Answer:

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8. For an event E, P(E) + P($\overline{E}$) = x, then the value of $x^3 - 3$ is

A. -2

B. 2

C. 1

D. -1

Answer:

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9. What is the greatest possible speed at which a girl can walk 95 m and 171 m in an exact number of minutes ?

A. 17 m/min

B. 19 m/min

C. 23 m/min

D. 13m/min

Answer:

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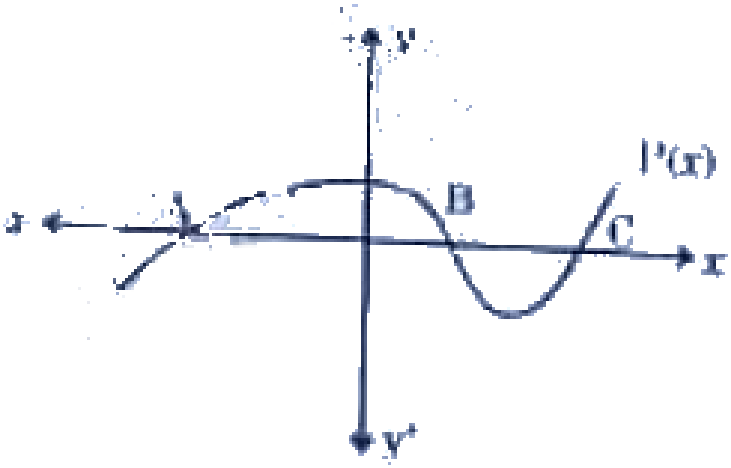
10. In figure, the graph of a polynomial P(x) is shown. The number of zeroes of P(x) is



A. 1

B. 2

C. 3

D. 4

Answer:

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11. Two lines are given to be parallel. The equation of one of the lines is $3x - 2y = 5$. The equation of the second line can be

A. $9x + 8y = 7$

B. $-12x - 8y = 7$

C. $-12x + 8y = 7$

D. $12x + 8y = 7$

Answer:

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12. Three vertices of a parallelogram $ABCD$ are $A(1, 4), B(-2, 3)$ and $C(5, 8)$. The ordinate of the fourth vertex D is

A. 8

B. 9

C. 7

D. 6

Answer:

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13. In ΔABC and ΔDEF, $\angle F = \angle C$, $\angle B = \angle E$ and $AB = \frac{1}{2}DE$. Then, the two triangles are

A. Congruent, but not similar.

B. Similar, but not congruent.

C. Neither congruent nor similar

D. Congruent as well as similar.

Answer:

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14. In ΔABC right angled at B, $\sin A = \frac{7}{25}$, then the value of cos C is

A. $\frac{7}{25}$

B. $\frac{24}{25}$

C. $\frac{7}{24}$

D. $\frac{24}{7}$

Answer:

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15. The minute band of a clock is 84 cm long. The distance covered by the tip of minute hand from 10 : 10 am to 10 : 25 am is

A. 44 cm

B. 88 cm

C. 132 cm

D. 176 cm

Answer:

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16. The probability that the drawn card from a pack of 52 card is neither an ace nor spade is.

A. $\frac{9}{13}$

B. $\frac{35}{52}$

C. $\frac{10}{13}$

D. $\frac{19}{26}$

Answer:

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17. Three alarm clocks ring their alarms at regular intervals of 20min, 25 min and 30 min respectively. If they first beep together at 12

noon, at what time will they deep again for the first time?

A. $4:00$pm

B. $4:30$pm

C. $5:00$pm

D. $5:30$ pm

Answer:

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18. A quadratic polynomial , the product and sum of whose zeroes are 5 and 8 respectively is

A. $k\left[x^2 - 8x + 5\right]$

B. $k\left[x^2 + 8x + 5\right]$

C. $k\left[x^2 - 5x + 8\right]$

D. $k\left[x^2 + 5x + 8\right]$

Answer:

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19. Point A(-1,y) and B (5,7) lie on a circle with centre O (2,-3y). The values of y are

A. 1,-7

B. $-1, 7$

C. 2,7

D. $-2, \ -7$

Answer:

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20. Give that $\sec\theta = \sqrt{2}$, the value of $\frac{1+\tan\theta}{\sin\theta}$ is

A. $2\sqrt{2}$

B. $\sqrt{2}$

C. $3\sqrt{2}$

D. 2

Answer:

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Section B

1. Find the greatest number which an dividing 1251 , 9377 and 15628 leaves remainders 1,2 and 3 respectively .

A. 575

B. 450

C. 750

D. 625

Answer:

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2. Which of the following cannot be the probability of an event ?

A. 0.01

B. 3%

C. $\frac{16}{17}$

D. $\frac{17}{16}$

Answer:

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3. The diameter of a car wheel is 42 cm. The number of complete revolutions it will make in moving 132 km is

A. 10^4

B. 10^5

C. 10^6

D. 10^3

Answer:

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4. If θ is an acute angle and $\tan\theta + \cot\theta = 2$, then the value of $\sin^3\theta + \cos^3\theta$ is

A. 1

B. $\frac{1}{2}$

C. $\frac{\sqrt{2}}{2}$

D. $\sqrt{2}$

Answer:

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5. The ratio in which the line $3x + y - 9 = 0$ divides the line segment joining the points (1, 3) and (2, 7) is

A. $3:2$

B. $2:3$

C. $3:4$

D. $4:3$

Answer:

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6. If x - 1 is a factor of the polynomial $p(x) = x^3 + ax^2 + 2b$ and a + b = 4, then

A. $a = 5, b = -1$

B. $a = 9, b = -5$

C. $a = 7, b = -3$

D. $a = 3, b = 1$

Answer:

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7. If a and b are two coprime numbers , then a^3 and b^3 are

A. Coprime

B. Not coprime

C. Even

D. Odd

Answer:

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8. The area of square that can be inscribed in a circle of area $\frac{1408}{7} cm^2$ is

A. $321 cm^2$

B. $642 cm^2$

C. $128 cm^2$

D. $256 cm^2$

Answer:

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9. If A(4,-2), B(7,-2) and C(7,2) are the vertices of a ΔABC, then ΔABC is

A. equilateral triangle

B. isosceles triangles

C. right angled triangle

D. isosceles right angled triangle

Answer:

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10. If α, β are the zeros of the quadratic polynomial

$p(x) = x^2 - (k+6)x + 2(2k-1)$ then the value of k, if $\alpha + \beta = \frac{1}{2}\alpha\beta$, is

A. -7

B. 7

C. -3

D. 3

Answer:

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11. If n is natural number, then $2(5^n + 6^n)$ always ends with

A. 1

B. 4

C. 3

D. 2

Answer:

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12. The line segment joining the points $P(-3, 2)$ and Q(5,7) is divided by the y - axis in the ratio

A. $3:1$

B. $3:4$

C. $3:2$

D. $3:5$

Answer:

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13. If

$a\cot\theta + b\text{cosec}\theta = p$ and $b\cot\theta + a\text{cosec}\ \theta = q$

, then $p^2 - q^2$=

A. $a^2 - b^2$

B. $b^2 - a^2$

C. $a^2 + b^2$

D. $b - a$

Answer:

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14. If the perimeter of a circle is half to that of a square , then the ratio of the area of the circle to the area of the square is

A. $22:7$

B. $11:7$

C. $7:11$

D. $7:22$

Answer:

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15. A dice is rolled twice. The probability that 5 will not come up either time is

A. $\frac{11}{36}$

B. $\frac{1}{3}$

C. $\frac{13}{36}$

D. $\frac{25}{36}$

Answer:

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16. The LCM of two number is 2400. Which of the following CANNOT be their HCF ?

A. 300

B. 400

C. 500

D. 600

Answer:

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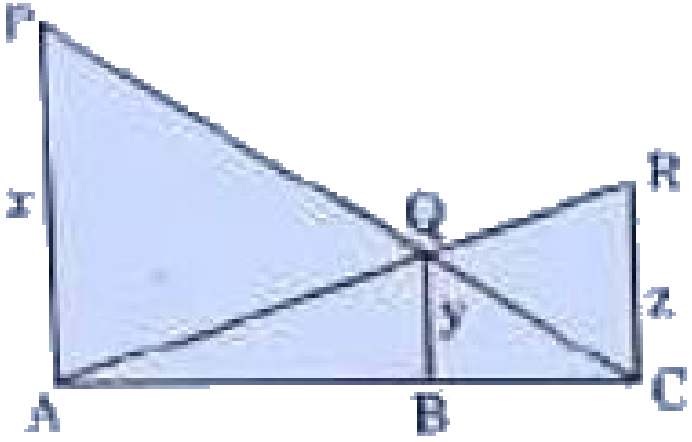
17. In fig., PA, QB and RC are each perpendicular to AC. If x =8 cm and z=6 cm , then y is equal to



A. $\frac{56}{7}cm$

B. $\frac{7}{56}cm$

C. $\frac{25}{7}cm$

D. $\frac{24}{7}cm$

Answer:

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18. In a $\Delta ABC, \angle A = x^\circ, \angle B = (3x - 2)^\circ \angle C = y^\circ$. Also $\angle C - \angle B = 9^\circ$. The sum of the greatest and the smallest angles of this triangle is .

A. 107°

B. 135°

C. 155°

D. 145°

Answer:

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19. If $\sec\theta + \tan\theta = p,$ then $\tan\theta$ is equal to

A. $\frac{p^2+1}{2p}$

B. $\frac{p^2-1}{2p}$

C. $\frac{p^2-1}{p^2+1}$

D. $\frac{p^2+1}{p^2-1}$

Answer:

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20. The base BC of an equilateral triangle ABC lies on y-axis. The coordinates of point C are (0, -3). The origin is the midpoint of the base.

Find the coordinates of the points A and B. Also, find the coordinates of another point D such that ABCD is a rhombus.

A. $A\left(\sqrt{3}, 0\right), B(0, 3)$

B. $A\left(\pm 3\sqrt{3}, 0\right), B(3, 0)$

C. $A\left(\pm 3\sqrt{3}, 0\right), B(0, 3)$

D. $A\left(- \sqrt{3}, 0\right), B(3, 0)$

Answer:

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Section C Case Study

1. A book store shopkeeper gives books on rent for reading. He has variety of books in his store related to fiction , stories and quizzes etc. He takes a fixed charge for the first two days and an additional charges for subsequent day . Amruta paid Rs 22 for a book and kept for 6 days, while Radhika paid Rs 16 for keeping the books for 4 days.

Assume that the fixed charge be rs x and additional charge (per day) by Rs y.

Based on the above information answer and four of the following questions:

The situation of amount paid by Radhika is algebraically repesented by .

A. $x - 4y = 16$

B. $x + 4y = 16$

C. $x - 2y = 16$

D. $x + 2y = 16$

Answer:

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2. A book store shopkeeper gives books on rent for reading. He has variety of books in his store related to fiction , stories and quizzes etc. He takes a fixed charge for the first two days and an additional charges for subsequent day . Amruta paid Rs 22 for a book and kept for 6 days, while Radhika paid Rs 16 for keeping the books for 4 days.

Assume that the fixed charge be rs x and additional charge (per day) by Rs y.

Based on the above information answer and four of the following questions:

The situation of amount paid by Amrita is algebraically represented by

A. $x - 2y = 11$

B. $x - 2y = 22$

C. $x + 4y = 22$

D. $x - 4y = 11$

Answer:

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3. A book store shopkeeper gives books on rent for reading. He has variety of books in his store related to fiction , stories and quizzes etc. He takes a fixed charge for the first two days and

an additional charges for subsequent day . Amruta paid Rs 22 for a book and kept for 6 days, while Radhika paid Rs 16 for keeping the books for 4 days.

Assume that the fixed charge be rs x and additional charge (per day) by Rs y.

Based on the above information answer and

four of the following questions:

What are the fixed charges for a book ?

A. Rs. 9

B. Rs. 10

C. Rs. 13

D. Rs. 15

Answer:

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4. A book store shopkeeper gives books on rent for reading. He has variety of books in his store related to fiction , stories and quizzes etc. He takes a fixed charge for the first two days and an additional charges for subsequent day . Amruta paid Rs 22 for a book and kept for 6 days, while Radhika paid Rs 16 for keeping the books for 4 days.

Assume that the fixed charge be rs x and additional charge (per day) by Rs y.

Based on the above information answer and four of the following questions:

What are the additional charges for each subsequent day for a book ?

A. Rs. 6

B. Rs. 5

C. Rs. 4

D. Rs. 3

Answer:

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5. A book store shopkeeper gives books on rent for reading. He has variety of books in his store related to fiction , stories and quizzes etc. He takes a fixed charge for the first two days and an additional charges for subsequent day . Amruta paid Rs 22 for a book and kept for 6 days, while Radhika paid Rs 16 for keeping the books for 4 days.

Assume that the fixed charge be rs x and additional charge (per day) by Rs y.

Based on the above information answer and four of the following questions:

What is the total amount paid by both, if both of them have kept the book for 2 more days ?

A. Rs. 35

B. Rs. 52

C. Rs. 50

D. Rs. 58

Answer:

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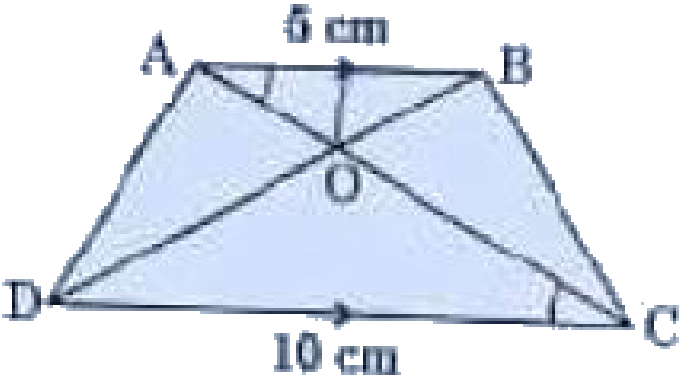
6. A farmer has a field in the shape of trapezium whose map with scale 1 cm = 20 m is given below :

The field is divided into four parts by joining

the opposite vertices .



Based on the above information , answer any four of the following questions :

The two triangular regions AOB and COD are

A. Similar by AA criterion

B. Similar by SAS criterion

C. Similar by RHS criterion

D. Not similar

Answer:

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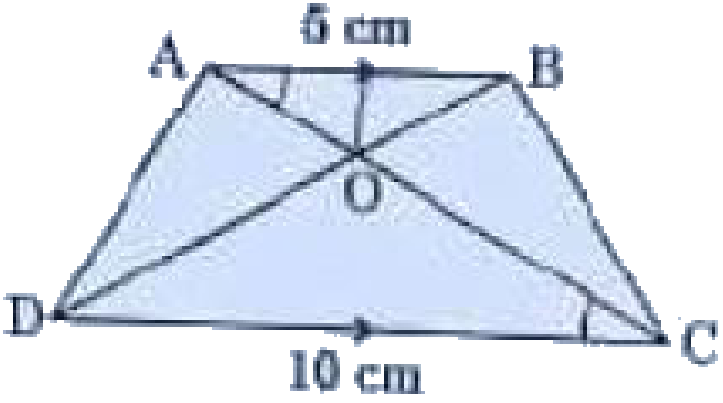
7. A farmer has a field in the shape of trapezium whose map with scale 1 cm = 20 m is given below :

The field is divided into four parts by joining the opposite vertices .



Based on the above information , answer any four of the following questions :

The ratio of the area of the ΔAOB to the area of ΔCOD , is

A. $4:1$

B. $1:4$

C. $1:2$

D. $2:1$

Answer:

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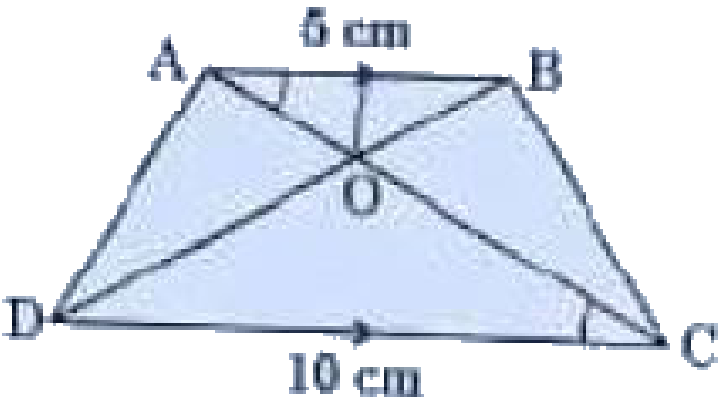
8. A farmer has a field in the shape of trapezium whose map with scale 1 cm = 20 m is given below :

The field is divided into four parts by joining the opposite vertices .



Based on the above information , answer any four of the following questions :

If the ratio of the perimeter of ΔAOB to the perimeter of ΔCOD would have been 1:4 , then

A. $AB = 2CD$

B. $AB = 4CD$

C. $CD = 2AB$

D. $CD = 4AB$

Answer:

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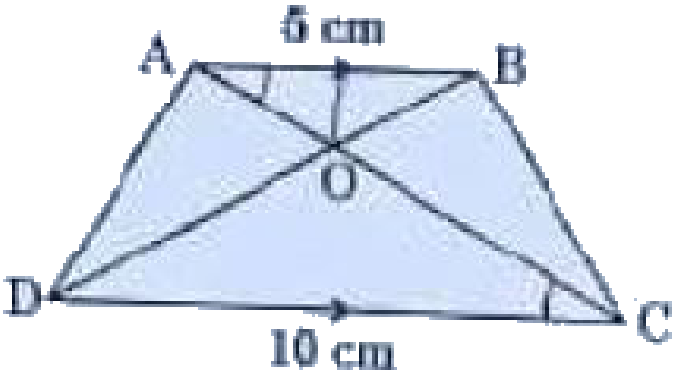
9. A farmer has a field in the shape of trapezium whose map with scale 1 cm = 20 m is given below :

The field is divided into four parts by joining the opposite vertices .



Based on the above information , answer any four of the following questions :

If in $\Delta sAOD$ and BOC, $\frac{AO}{BC} = \frac{AD}{BO} = \frac{OD}{OC}$, then

A. $\Delta AOD - \Delta BOC$

B. $\Delta AOD - \Delta BCO$

C. $\Delta ADO - \Delta BCO$

D. $\Delta ODA - \Delta OBC$

Answer:

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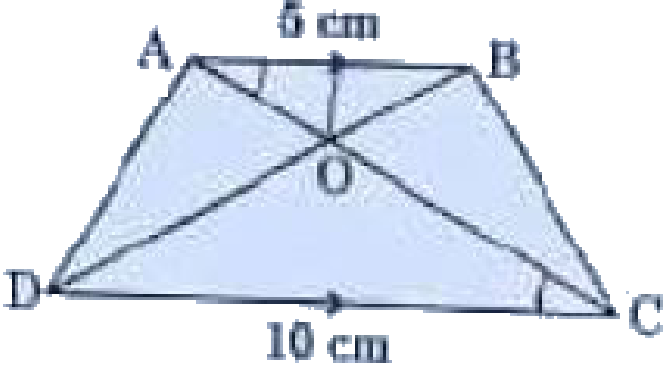
10. A farmer has a field in the shape of trapezium whose map with scale 1 cm = 20 m is given below :

The field is divided into four parts by joining the opposite vertices .



Based on the above information , answer any four of the following questions :

If the ratio of areas of two similar triangles AOB and COD is 1:4 , then which of the following statements is true ?

A. The ratio of the their perimeters is 3:4

B. The corresponding altitudes have a ratio 1:2

C. The medians have a ratio $1:4$

D. The angle bisectors have a ratio $1:16$

Answer:

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