MATHS

BOOKS - SELINA MATHS (ENGLISH)

QUESTION PAPER 2022 TERM 1

Questions

1. If $(x + 2)$ is a factor of the polynomial

$x^3 - kx^2 - 5x + 6$ then the value of k is:

A. 1

B. 2

C. 3

D. -2

Answer:

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2. The solution set of the inequation

$x - 3 \geq -5, x \in R$ is

A. $\{x : x > -2, x \in R\}$

B. $\{x : x \leq -2, x \in R\}$

C. $\{x : x \geq -2, x \in R\}$

D. $\{-2, -1, 0, 1, 2\}$

Answer:

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3. The product AB of two matrices A and B is possible if:

    A. A and B have the same number of rows.

    B. the number of columns of A is equal to the number of rows of B

C. the number of rows of A is equal to the number of columns of B.

D. A and B have the same number of columns.

Answer:

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4. If 70, 75,80,85 are the first four terms of an Arithmetic Progression, then the 10th term is:

A. 35

B. 25

C. 115

D. 105

Answer:

5. The selling price of a shirt excluding GST is Rs. 800. If the rate of GST is 12% then the total price of the shirt is:

A. $Rs.704$

B. $Rs.\ 96$

C. $Rs.896$

D. $Rs.848$

Answer:

6. Which of the following quadratic equations has 2 and 3 as its roots?

A. $x^2 - 5x + 6 = 0$

B. $x^2 + 5x + 6 = 0$

C. $x^2 - 5x - 6 = 0$

D. $x^2 + 5x - 6 = 0$

Answer:

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7. If x, 5.4,5,9 are in proportion then x is:
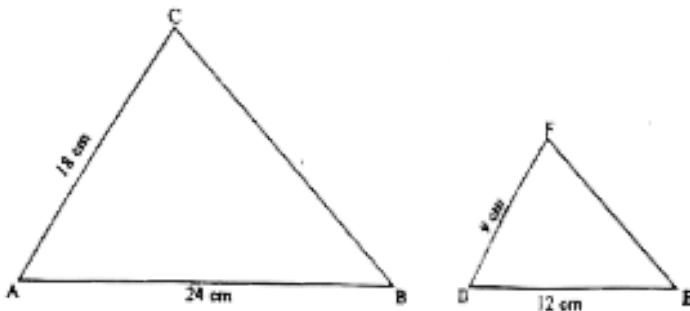
A. 3

B. 9.72

C. 25

D. $25/3$

Answer:

8. In the given figure $AB = 24cm, AC = 18cm. DE = 12cm. DF = 9cm$ and $\angle BAC = \angle EDF.$ Then $\triangle ABC \sim \triangle DEF$ by the condition:

A. AAA

B. SAS

C. SSS

D. AAS

Answer:

9. If $A = \begin{bmatrix} 5 & 10 \\ 3 & -4 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ then AI is equal to

A. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

B. $\begin{bmatrix} 5 & 10 \\ -3 & 4 \end{bmatrix}$

C. $\begin{bmatrix} 5 & 10 \\ 3 & -4 \end{bmatrix}$

D. $\begin{bmatrix} 15 & 15 \\ -1 & -1 \end{bmatrix}$

Answer:

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10. The polynomial $x^3 - 2x^2 + ax + 12$ when divided by $(x + 1)$ leaves a remainder 20, then 'a' is equal to:

A. -31

B. 9

C. 11

D. -11

Answer:

11. In an Arithmetic Progression (A.P.) if, first term is 5, common difference is - 3 and the nth term is - 7, then n is equal to:
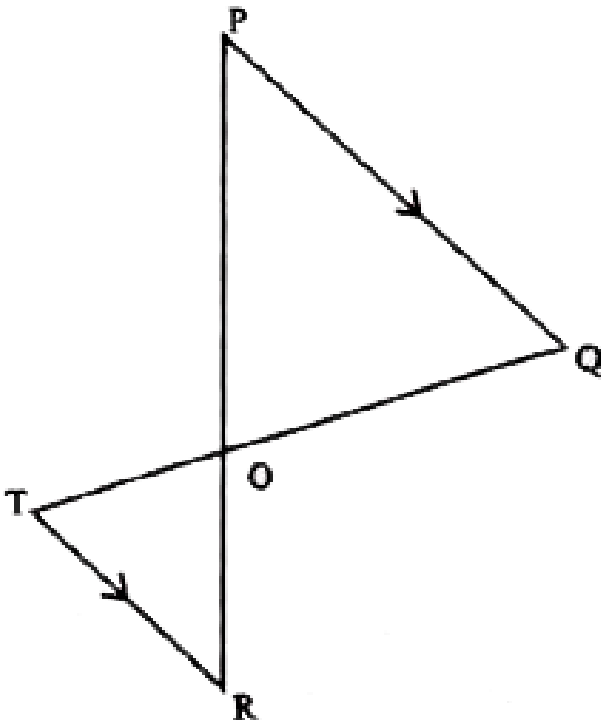
A. 5

B. 17

C. -13

D. 7

Answer:

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12. In the given figure PQ is parallel to TR, then by using condition of similarity:

A. $\dfrac{PQ}{RT} = \dfrac{OP}{OT} = \dfrac{OQ}{OR}$

B. $\dfrac{PQ}{RT} = \dfrac{OP}{OR} = \dfrac{OQ}{OT}$

C. $\dfrac{PQ}{RT} = \dfrac{OR}{OP} = \dfrac{OQ}{OT}$

D. $\dfrac{PQ}{RT} = \dfrac{OP}{OR} = \dfrac{OT}{OQ}$

Answer:

13. If a, b, c, and d are proportional then $\dfrac{a+b}{a-b}$ is equal to:

A. $\dfrac{c}{d}$

B. $\dfrac{c-d}{c+d}$

C. $\dfrac{d}{c}$

D. $\dfrac{c+d}{c-d}$

Answer:

14. The first four terms of an Arithmetic Progression (A. P.), whose first term is 4 and common difference is – 6, are:

A. $4, \; -10, \; -16, \; -22$

B. $4, 10, 16, 22$

C. $4, \; -2, \; -8, \; -14$

D. $4, 2, 8, 14$

Answer:

15. One of the roots of the quadratic equation $x^2 - 8x + 5 = 0$ is 7.3166. There correct to 4 significant figures is:

A. 7.3166

B. 7.317

C. 7.316

D. 7.32

Answer:

16. $(x + 2)$ and $(x + 3)$ are two factors of the polynomial $x^3 + 6x^2 + 11x + 6$. If polynomial is completely factorised in

A. $(x - 2)(x + 3)(x + 1)$

B. $(x + 2)(x - 3)(x - 1)$

C. $(x + 2)(x + 3)(x - 1)$

D. $(x + 2)(x + 3)(x + 1)$

Answer:

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17. The sum of the first 20 terms of the Arithmetic Progression 2, 4, 6, 8, ... is:
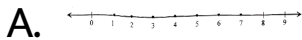
A. 400

B. 840

C. 420

D. 800

Answer:

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18. The solution set on the number line of the linear inequation:

$2y - 6 < y + 2 \leq 2y,\ y \in N$ is

A.

B.

C.

D.

Answer:

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19. If x, y, z are in continued proportion then $(y^2 + z^2) : (x^2 + y^2)$ is equal to

A. $z : x$

B. $x : z$

C. zx

D. $(y + z)(x + y)$

Answer:

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20. The marked price of an article is Rs. 5000. The shopkeeper gives a discount of 10%. If the face of GST is 12%, then the amount paid by the customer including GST is:

A. Rs. 5040

B. Rs. 6100

C. Rs. 6272

D. Rs. 6160

Answer:

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21. If

$$A = \begin{bmatrix} 3 & 5 \\ 1 & 4 \end{bmatrix}, B = \begin{bmatrix} 2 & 4 \\ 0 & 3 \end{bmatrix} \text{ and } C = \begin{bmatrix} 1 & -1 \\ 2 & 1 \end{bmatrix}$$

, then 5A - BC is equal to :

A. $\begin{bmatrix} -5 & -23 \\ 1 & 17 \end{bmatrix}$

B. $\begin{bmatrix} 5 & 23 \\ 1 & 17 \end{bmatrix}$

C. $\begin{bmatrix} -2 & 8 \\ -3 & 3 \end{bmatrix}$

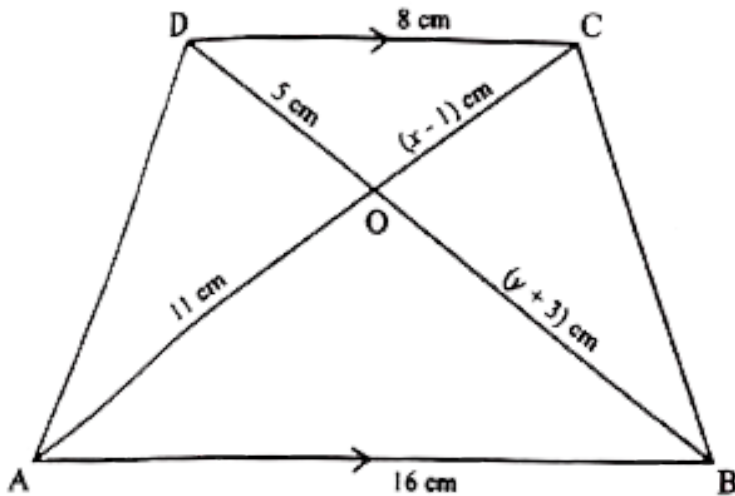D. $\begin{bmatrix} 5 & 23 \\ -1 & 17 \end{bmatrix}$

Answer:

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22. In the given figure ABCD is a trapezium in which DC is parallel to AB.

AB = 16 cm and DC = 8 cm. OD = 5 cm, OB = (y + 3) cm, OA = 11 cm and OC = (x - 1) cm.

Using the given information answer the following questions.

From the given figure name the pair of similar triangles:

A. ΔOAB, ΔOBC

B. ΔCOD, ΔAOB

C. ΔADB, ΔACB
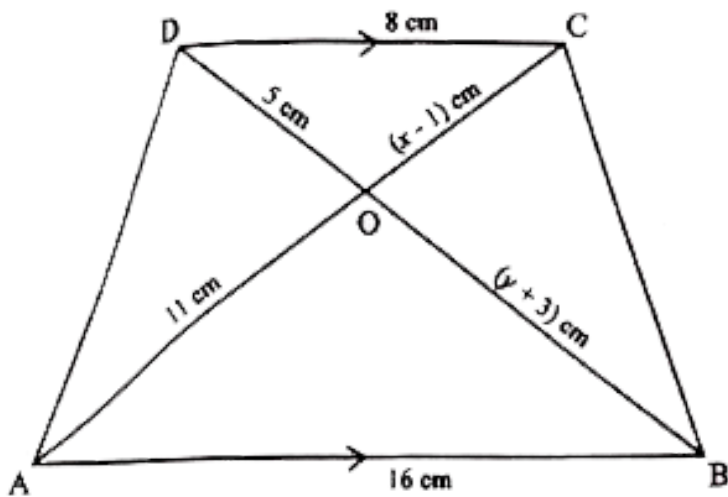
D. ΔCOD, ΔCOB

Answer:

23. In the given figure ABCD is a trapezium in which DC is parallel to AB.

AB = 16 cm and DC = 8 cm. OD = 5 cm, OB = (y + 3)

cm, OA = 11 cm and OC = (x - 1) cm.

Using the given information answer the following questions.

The corresponding proportional sides with respect to the pair of similar triangles obtained in (i)

A. $\dfrac{CD}{AB} = \dfrac{OC}{OA} = \dfrac{OD}{OB}$

B. $\dfrac{AD}{BC} = \dfrac{OC}{OA} = \dfrac{OD}{OB}$

C. $\dfrac{AD}{BC} = \dfrac{BD}{AC} = \dfrac{AB}{DC}$

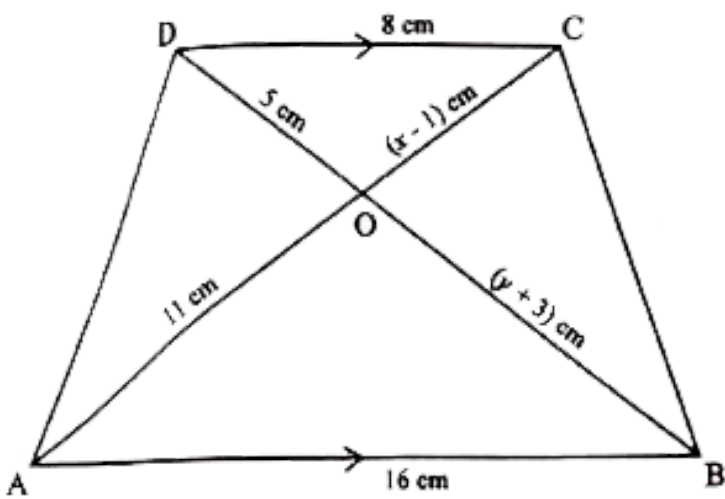D. $\dfrac{OD}{OB} = \dfrac{CD}{CB} = \dfrac{OC}{OA}$

Answer:

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24. In the given figure ABCD is a trapezium in which DC is parallel to AB.

AB = 16 cm and DC = 8 cm. OD = 5 cm, OB = (y + 3) cm, OA = 11 cm and OC = (x - 1) cm.

Using the given information answer the following questions.

D — 8 cm — C

5 cm

(x - 1) cm

O

11 cm

(y + 3) cm

A — 16 cm — B

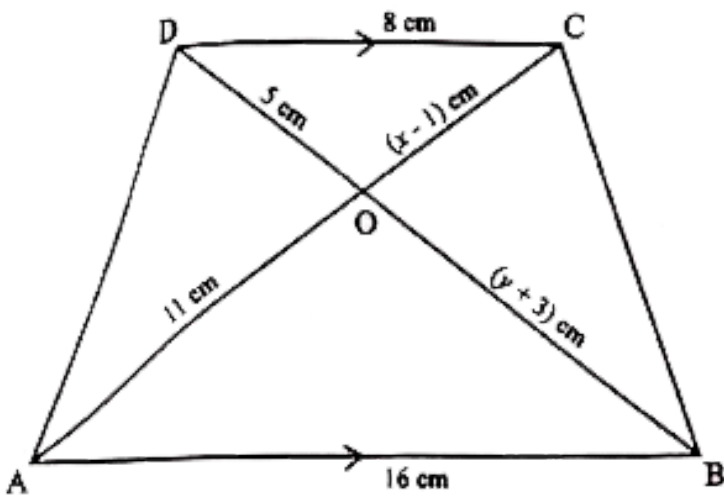The ratio of the sides of the pair of similar triangles is:

A. $1:3$

B. $1:2$

C. $2:3$

D. $3:1$

Answer:

25. In the given figure ABCD is a trapezium in which DC is parallel to AB.

AB = 16 cm and DC = 8 cm. OD = 5 cm, OB = (y + 3) cm, OA = 11 cm and OC = (x - 1) cm.

Using the given information answer the following questions.

Using the ratio of sides of the pair of similar

triangles the values of x and y are respectively

A. $x = 4.6, y = 7$

B. $x = 7, y = 7$

C. $x = 6.5, y = 7$

D. $x = 6.5, y = 2$

Answer:

26. Two cars X and Y use 1 litre of diesel to travel x

km and (x + 3) km respectively. both the cars

covered a distance of 72 km, then:

the number of litres of diesel used by car X is:

A. $\dfrac{72}{x-3}$ litres

B. $\dfrac{72}{x+3}$ litres

C. $\dfrac{72}{x}$ litres

D. $\dfrac{12}{x}$ litres

Answer:

27. Two cars X and Y use 1 litre of diesel to travel x km and (x + 3) km respectively. both the cars covered a distance of 72 km, then:

The number of liters of diesel used by car Y is :

A. $\dfrac{72}{x-3}$ litres

B. $\dfrac{72}{x+3}$ litres

C. $\dfrac{72}{x}$ litres

D. $\dfrac{12}{x+3}$ litres

Answer:

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28. Two cars X and Y use 1 litre of diesel to travel x

km and (x + 3) km respectively. both the cars

covered a distance of 72 km, then:

If car X used 4 litres of diesel more than car Y is

the journey , then

A. $\dfrac{72}{x-3} - \dfrac{12}{x} = 4$

B. $\dfrac{72}{x+3} - \dfrac{72}{x} = 4$

C. $\dfrac{72}{x} - \dfrac{72}{x+3} = 4$

D. $\dfrac{72}{x-3} - \dfrac{72}{x+3} = 4$

Answer:

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29. Two cars X and Y use 1 litre of diesel to travel x km and $(x + 3)$ km respectively. both the cars covered a distance of 72 km, then:

If car X used 4 litres of diesel more than car Y is the journey The amount of diesel used by the car X is:

A. 6 litres

B. 12 litres

C. 18 litres

D. 24 litres

Answer:

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Joseph has a recurring deposit account in a bank for two years at the rare of 8% per annum simple interest.

If at the time of maturity Joseph receives Rs. 2000 as interest then the monthly installment is:

    A. Rs. 1200

    B. Rs. 600

    C. Rs. 1000

    D. Rs. 1600

Answer:

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31. Joseph has a recurring deposit account in a bank for two years at the rare of 8% per annum simple interest.

The total amount deposited in the bank:

    A. Rs. 25000

    B. Rs. 24000

    C. Rs. 26000

    D. Rs. 23000

Answer:

32. Joseph has a recurring deposit account in a bank for two years at the rare of 8% per annum simple interest.

The amount Joseph receives on maturity is:

   A. Rs. 27000

   B. Rs. 25000

   C. Rs. 26000

   D. Rs. 28000

Answer:

33. Joseph has a recurring deposit account in a bank for two years at the rare of 8% per annum simple interest .

If the monthly instalment is Rs. 100 and the rate of interest is 8%, in how many months Joseph will receive Rs. 52 as interest?

A. 18

B. 30

C. 12

D. 6

Answer:

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