MATHS

BOOKS - SELINA MATHS (ENGLISH)

SAMPLE PAPER 4

Question Section A

1. Matrices 'A' and 'B' are of same order and $A + B = B + A$. This law is known as:

A. Distributive law

B. Commutative law

C. Associative law

D. Cramer's rule

Answer: B

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2. If a matrix has equal number of rows and columns then it is said to be a:

A. Row Matrix

B. Identical matrix

C. Square matrix

D. Rectangular matrix

Answer: C

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3. Richa has a recurring deposit account in a bank for 3 years at 8% per annum interest. If she gets Rs 2,775 as interest at the time of maturity, then her monthly installment is:

A. Rs 500

B. Rs 625

C. Rs 750

D. Rs 875

Answer: B

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4. The first, second and fourth terms of a proportion are 16, 24 and 54 respectively. Then the third term is:

A. 36

B. 48

C. 28

D. 32

Answer: A

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5. The compounded ratio of 2:3 and 5:7 is

A. $7:10$

B. $9:8$

C. $10:21$

D. $14:15$

Answer: C

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6. If $\frac{1}{2}$ is a root of the quadratic equation $x^2 - mx - \frac{5}{4} = 0$, then the value of m is

A. 2

B. -2

C. -3

D. 3

Answer: B

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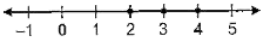
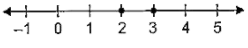
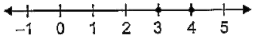
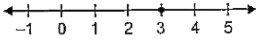
7. The solution set of $1 \geq 15 - 7x > 2x - 27, x \in N$ on the number line is

A. 

B. 

C. 

D. 

Answer: A

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8. If the sum of first n terms of an A.P is $An + Bn^2$, where A and B are constants, the common difference of A.P. will be

A. $A + B$

B. $A - B$

C. 2A

D. 2B

Answer: D

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9. Sum of n terms of the series $\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32} +$ ..... Is

A. $\frac{n(n+2)}{\sqrt{2}}$

B. $\sqrt{2}n(n+1)$

C. $\frac{n(n+1)}{\sqrt{2}}$

D. 1

Answer: C

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10. If a polynomial p(x) is divided by a linear divisor $(x-a)$, then the remainder is:

A. p(a)

B. p(1)

C. p(0)

D. p(x)

Answer: A

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11. If $(x-1)$ is a factor of $x^3 - kx^2 + 11x - 6$, then the value of k should be:

A. 1

B. -6

C. 6

D. 5

Answer: C

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12. The polynomial equation $x(x+1)+8=(x+2)(x-2)$ is a:

A. linear equation

B. quadratic equation

C. cubic equation

D. bi-equadratic equation

Answer: A

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13. The roots of the quadratic equation $3x^2 - 14x + 8 = 0$ are:

A. $\frac{1}{3}, 2$

B. $\frac{1}{2}, 3$

C. $\frac{2}{3}, 4$

D. $\frac{3}{4}, 2$

Answer: C

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14. The product of matrices $(PQ)^{-1}P$ is

A. P^{-1}

B. Q^{-1}

C. $P^{-1}Q^{-1}P$

D. PQP^{-1}

Answer: B

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Question Section B

1. The solution set of $\frac{x-1}{3}+4<\left(\frac{x-5}{5}\right)-2$ is

A. $(-\infty, -50)$

B. $(-\infty, -5)$

C. $(-\infty, -10)$

D. $(-\infty, -15)$

Answer: A

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2. Krishna deposited Rs 2,000 per month in a recurring bank account for 2 years at the rate of 11% per annum interest. The amount Krishna will get at the time of maturity is:

A. Rs 47,632

B. Rs 50,500

C. Rs 51,225

D. Rs 53,500

Answer: D

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3. Mr Pankaj took health insurance policy for his family and paid Rs 900 as SGST. The total Annual Premium paid by him for this policy rate of GST being 18% is

A. Rs 1,800

B. Rs 10,000

C. Rs 5,000

D. Rs 3,600

Answer: B

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4. The traders at each stage always pay GST to the Government on their _____

A. Profits

B. C.P

C. Discount

D. S.P

Answer: A

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5. Two matrices A and B are multipled to get AB, if:

A. Both are rectangular

B. Both have same order

C. No. of columns of 'A' is equal to the no. of rows of 'B'

D. No. of rows of 'A' is equal to the no. of columns of 'B'

Answer: C

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Question Section C

1. The production of TV sets in a factory increases uniformly by a fixed number every year. It produced 16000 sets in 6^{th} year and 22,600 in 9^{th} year.

Find the production during 1^{st} year.

A. 5000

B. 2200

C. 10000

D. None of these

Answer: A

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2. The production of TV sets in a factory increases uniformly by a fixed number every year. It produced 16000 sets in 6^{th} year and 22,600 in 9^{th} year.

The fixed number of TV sets increases every year is

A. 5000

B. 3200

C. 2200

D. 1000

Answer: C

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3. The production of TV sets in a factory increases uniformly by a fixed number every year. It produced 16000 sets in 6^{th} year and 22,600 in 9^{th} year.

Find the production during 3^{rd} year

A. 9600

B. 9400

C. 9200

D. 9000

Answer: B

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4. The production of TV sets in a factory increases uniformly by a fixed number every year. It produced 16000 sets in 6^{th} year and 22,600 in 9^{th} year.

The total production in 10 years will be:

A. 1,49,000

B. 1,52,000

C. 50000

D. 75000

Answer: A

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5. The speed of a motor boat is 20km/hr for covering the distance of 15km. The boat took 1 hour more for upstream than downstream.

Let the speed of the stream be x km/hour, then the speed of the motor boat in upstream will be:

A. 20km/hr

B. $(20 + x)$ km/hr

C. $(20 - x)$

D. 2km/hr

Answer: C

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6. The speed of a motor boat is 20km/hr for covering the distance of 15km. The boat took 1 hour more for upstream than downstream.

What is the relation between speed, distance and time?

A. speed $= \frac{\text{Distance}}{\text{Time}}$

B. Distance $= \frac{\text{speed}}{\text{Time}}$

C. Time = Speed $\times$ Distance

D. Speed = Distance $\times$ Time

Answer: A

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7. The speed of a motor boat is 20km/hr for covering the distance of 15km. The boat took 1 hour more for upstream than downstream.

What will be the speed of stream?

A. 20km/hour

B. 10km/hour

C. 15km/hour

D. 25km/hour

Answer: B

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8. The speed of a motor boat is 20km/hr for covering the distance of 15km. The boat took 1 hour more for upstream than downstream.

How much time boat took in downstream?

A. 90 minutes

B. 15 minutes

C. 30 minutes

D. 45 minutes

Answer: C

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9. Consider the following matrices.

$A = \begin{bmatrix} 3 & -2 \\ -1 & 4 \end{bmatrix}, B = \begin{bmatrix} 2 & 1 \\ -3 & 4 \end{bmatrix}, C = \begin{bmatrix} 1 & 1 \\ 2 & 1 \end{bmatrix}, D = \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$

If $A\begin{bmatrix} 2x \\ 1 \end{bmatrix} + 2\begin{bmatrix} -4 \\ 5 \end{bmatrix} = 4\begin{bmatrix} 2 \\ y \end{bmatrix}$ then the values of x and y, respectively are:

A. 2, 3

B. 1, 3

C. 3, 4

D. 3, 2

Answer: D

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10. Consider the following matrices.

$A = \begin{bmatrix} 3 & -2 \\ -1 & 4 \end{bmatrix}, B = \begin{bmatrix} 2 & 1 \\ -3 & 4 \end{bmatrix}, C = \begin{bmatrix} 1 & 1 \\ 2 & 1 \end{bmatrix}, D = \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$

If $BX = \begin{bmatrix} 7 \\ 6 \end{bmatrix}$, then the order of matrix X will be:

A. 2×2

B. 1×2

C. 2×1

D. 1×1

Answer: C

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11. Consider the following matrices.

$$A = \begin{bmatrix} 3 & -2 \\ -1 & 4 \end{bmatrix}, B = \begin{bmatrix} 2 & 1 \\ -3 & 4 \end{bmatrix}, C = \begin{bmatrix} 1 & 1 \\ 2 & 1 \end{bmatrix}, D = \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$$

CD=

A. $\begin{bmatrix} 5 & 4 \\ 4 & 5 \end{bmatrix}$

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

C. $\begin{bmatrix} 1 & 3 \\ 3 & 1 \end{bmatrix}$

D. $\begin{bmatrix} 3 & 1 \\ 1 & 3 \end{bmatrix}$

Answer: B

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12. Consider the following matrices.

$$A = \begin{bmatrix} 3 & -2 \\ -1 & 4 \end{bmatrix}, B = \begin{bmatrix} 2 & 1 \\ -3 & 4 \end{bmatrix}, C = \begin{bmatrix} 1 & 1 \\ 2 & 1 \end{bmatrix}, D = \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$$

$2A + B - C$=

A. $\begin{bmatrix} 7 & -5 \\ -7 & 11 \end{bmatrix}$

B. $\begin{bmatrix} 8 & -7 \\ 11 & -4 \end{bmatrix}$

C. $\begin{bmatrix} -4 & 3 \\ 7 & -8 \end{bmatrix}$

D. $\begin{bmatrix} 7 & -11 \\ -4 & 6 \end{bmatrix}$

Answer: A

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