The Brigade School-T A.1:2020-21

Total points 70/80

Mathematics | Std: 10 | Max. Marks: 80 | Time: 3 hrs.

Email address *

mananmehtabatman@gmail.com

0 of 0 points

Name of the Student: *

Manan Y Mehta

Class / Sec : *

10 A

Name of the School : *

TBSG

Instructions:

1. Select your name, school and section correctly
2. This paper consists of Section A (30 marks) and Section B (50 marks)
3. Attempt all questions
4. Ensure that you have completed and revised your paper before submission
5. You can attempt your paper only once

Section - A

28 of 30 points

Choose the correct Answer for the following Questions.
[Each Question carries 1 mark.]

✓ 1) Which term of the A.P. 3, 5, 7, ... is 21 * 1/1

- ○ 9th
- ◉ 10th ✓
- ○ 11th

Feedback

tn = a + (n-1)d
21 = 3 + (n-1) 2
9 = n-1
n = 10

✓ 2) The remainder, when x^3 + 3x^2 - 12x + 4 is divided by x - 2 is * 1/1

- 4
- (●) 0 ✓
- 2

Feedback

p(2) = (2)^3 + 3(2)^2 - 12(2) + 4
= 8 + 12 - 24 + 4
= 24 - 24
= 0

✓ 3) The two natural numbers which differ by 2 and the difference of their squares is 56 are * 1/1

- 19 and 17
- (●) 15 and 13 ✓
- 29 and 27

Feedback

Let the numbers be x and x+2
(x+2)^2 - x^2 = 56
4x + 4 = 56
x = 52/4
x= 13
∴ The numbers are 13 and 15

✓ 4) If x ϵ N, then the solution set of 4x + 6 ≤ 2x + 12 is * 1/1

- ○ { 0, 1, 2, 3 }
- ○ { 1, 2 }
- ◉ { 1, 2, 3 } ✓

Feedback

4x + 6 ≤ 2x + 12
4x - 2x ≤ 12 - 6
2x ≤ 6
x ≤ 3
ie, the solution set = { 1, 2, 3 }

✗ 5) Out put tax - In put tax = ... * 0/1

- ○ Integrated GST
- ◉ Input tax credit ✗
- ○ Tax liability

Correct answer

- ◉ Tax liability

Feedback

Out put tax - In put tax = Tax liability

✓ 6) Monica had a R.D. Account in a bank and deposited ₹ 600 per month for 3 years. If the M.V. of this account was ₹ 24930 and the rate of interest was 10% p.a. Then the interest paid by the bank is * 1/1

- ○ ₹ 21600
- ◉ ₹ 3330 ✓
- ○ ₹ 180

Feedback

Interest = MV - Total instalment paid
I = MV - nP
= 24930 - 600 x 36
= 24930 - 21600
= ₹ 3330

✓ 7) The nature of the roots of the equation 3x^2 - 6x - 3 = 0 is * 1/1

- ○ Real and Equal
- ◉ Real and Unequal ✓
- ○ Imaginary roots

Feedback

b^2 - 4ac = (-6)^2 - 4x 3 x -3
= 36 +36
= 72
b^2 - 4ac > 0, ∴ roots are real and unequal

✓ 8) If the 10th term of an A.P. is 38 and 16th term is 74, what is its first term? * 1/1

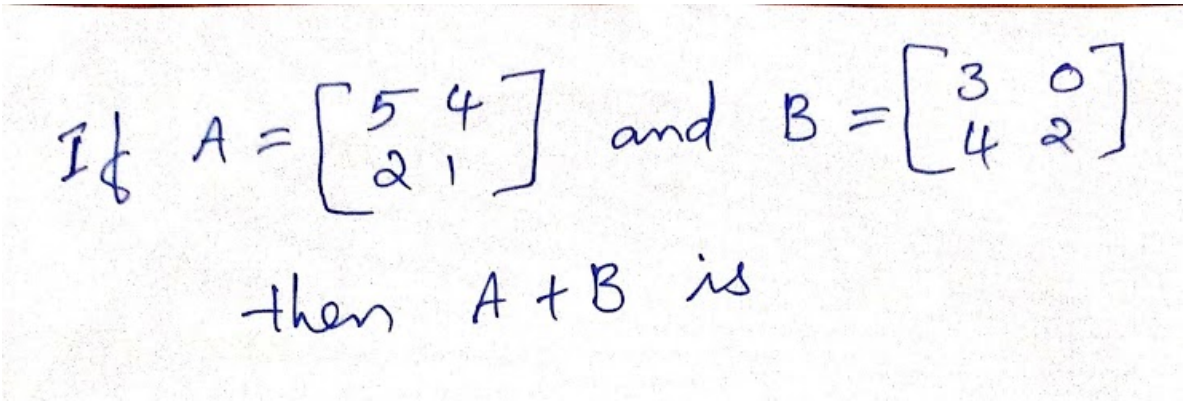
- 6
- ◉ - 16 ✓
- 16

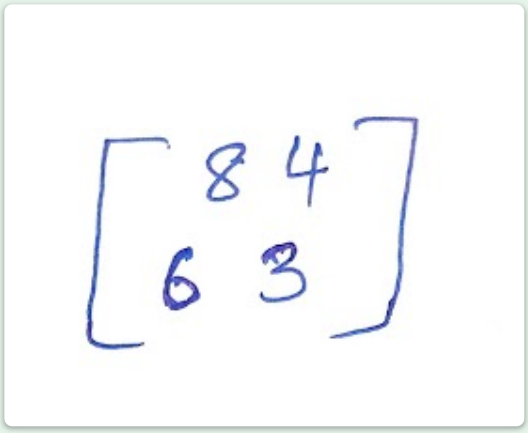
Feedback

a + 9d = 38
a + 15d = 74
∴ 6d = 36
d = 6
a + 9x6 = 38
a = 38 - 54
a = - 16

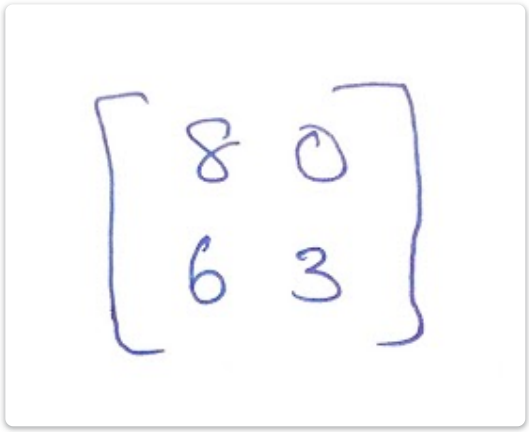
✓ 9) *

1/1

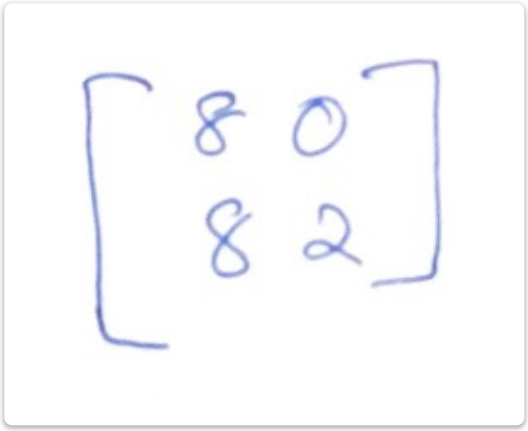




◉ Option 1 ✓



○ Option 2



○ Option 3

Feedback

To add two Matrices add the corresponding elements

✓ 10) If 4.7, 5.2, 5.7, ... are in A.P., then its 9th term is * 1/1

- ○ 8.5
- ◉ 8.7 ✓
- ○ 9.2

Feedback

tn = a + (n-1)d
t9 = 4.7 + 8x0.5
t9 = 4.7 + 4
t9 = 8.7

✓ 11) The diagonal of a rectangle is 17 cm and the difference between whose adjacent sides is 7 cm. The length of the rectangle is * 1/1

- ◉ 15 cm ✓
- ○ 10 cm
- ○ 9 cm

Feedback

let the side be x and (x+7)
By Pythagoras theorem
17^2 = x^2 + (x+7)^2
289 = 2x^2 + 14x + 49
x^2 + 7x - 120 = 0
(x + 15)(x - 8) = 0
x = -15 or 8
∴ Length is 8 + 7 = 15cm

✓ 12) If 1/2, 1, 3/2, ... are in A.P., then 'd' is * 1/1

- 1
- - 1/2
- 1/2 ✓

Feedback

d = 1 - 1/2
d = 1/2

✓ 13) The C.S.A. of a cylinder of base circumference 22 cm and height 15 cm is * 1/1

- 577.5 cm^2
- 330 cm^2 ✓
- 578 cm^2

Feedback

CSA = C x h
CSA = 22 x 15
CSA = 330cm^2

✓ 14) If the C.S.A. of a cone of diameter 14 cm is 550 cm, then its height is * 1/1

- ○ 25 cm
- ◉ 24 cm ✓
- ○ 28 cm

Feedback

CSA = πrl = 550
22/7 x 7 x l = 550
l = 550/22 = 25
h = √(l^2 - r^2)
h = √(25^2 - 7^2)
h = √(625 - 49)
h = √576 = 24cm

✓ 15) Which of the following expression represents the situation of a car made a run of 390 km in x hours, if the speed had been 4 km/h more, it would have taken 2 hours less for the same journey? * 1/1

- ◉ 390/x = 390/(x + 4) + 2 ✓
- ○ 390/(x + 4) = 390/x + 2
- ○ 390/(x + 4) - 2 = 390/x

Feedback

Time = Distance / Speed
t1 = t2 + 2

16) What should be subtracted from 2x^3 - 3x^2 + x, so that when the resulting polynomial is divided by x + 2 the remainder is -28 * 0/1

- (•) 2
- ( ) - 2
- ( ) 3

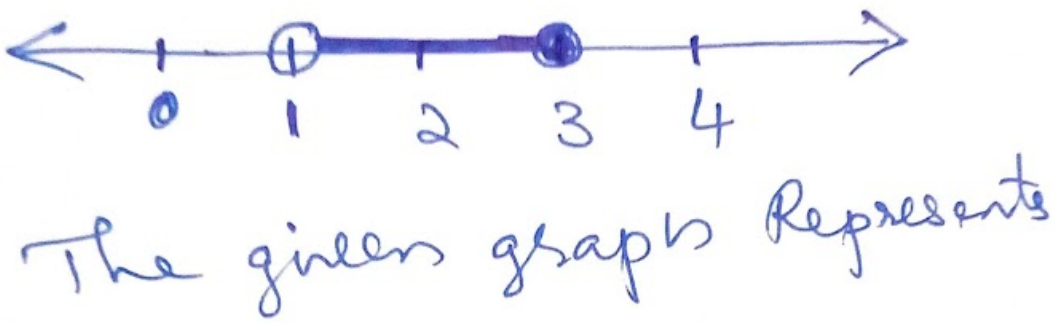
Correct answer

- (•) - 2

Feedback

Let k be the number to be subtracted
∴ 2(-2)^3 - 3(-2)^2 + (-2) - k = -28
2x-8 - 3x4 - 2 + 28 - k = 0
-16 -12 - 2 + 28 = k
k = -30 + 28
k = -2

✓ 17) * 1/1



- ○ { 1 ≤ x < 3 }
- ◉ { 1 < x ≤ 3 } ✓
- ○ { 1 < x < 3 }

Feedback

1 is not included but 3 is included.

✓ 18) A computer mechanic in Bengaluru charges repairing cost ₹ 7500. He allows a discount of 20%. If the GST is 18 %, what is the repairing charge collected by the mechanic including GST? * 1/1

- ₹ 1080
- ₹ 8850
- ₹ 7080 ✓

Feedback

Repairing charge = ₹ 7500 - 20% of ₹ 7500
= 7500 - 20x75
= ₹ 6000
GST = 18% of ₹ 6000
GST = 18x 60
GST = ₹1080
Repairing charge including GST = ₹ 6000 + 1080 = ₹ 7080

✓ 19) The mean proportional between 3 and 12 is * 1/1

- 48
- 6 ✓
- 18

Feedback

Mean proportional b^2 = ac
b^2 = 3x12 = 36
∴ b = 6

✓ 20) A dealer from Jaipur buys goods worth ₹ 6000 from Delhi. If the GST is 12 % , how much will the dealer pay as CGST for the goods bought? * 1/1

- ○ ₹ 360
- ○ ₹ 720
- ◉ None of these ✓

Feedback

Inter-State transaction of goods/services , CGST and SGST is Nil (only IGST)

✓ 21) If 3x - 4 is a factor of 3x^2 + 2x + m, the value of m is * 1/1

- ○ 8
- ◉ - 8 ✓
- ○ 4/3

Feedback

3(4/3)^2 + 2(4/3) + m = 0
16/3 + 8/3 + m = 0
m = - 24/3
m = - 8

✓ 22) The sum of first nine terms of the A.P. 16, 12, 8, ... is * 1/1

- 4
4
0 ✓

Feedback

Sn = n/2 [2a + (n-1) d]
S9 = 9/2 [2x16 + 8x -4]
S9 = 9/2 [32 - 32]
S9 = 9/2 x 0
S9 = 0

✓ 23) Volume of a cylinder, whose diameter 12 cm and height 14 cm is * 1/1

1458 cm^3
1548 cm^3
1584 cm^3 ✓

Feedback

V = πr^2h
V = 22/7 x 6x6x14
V = 22 x 36 x 2
V = 1584 cm^3

✓ 24) The matrix [0 0] is called * 1/1

- ○ Identity Matrix
- ◉ Null Matrix ✓
- ○ Diagonal Matrix

Feedback

Matrix with all its elements are zeros is called Null Matrix

✓ 25) 'n' times the average of first and last term of an A.P. is equal to its * 1/1

- ○ n th term
- ◉ sum of first n terms ✓
- ○ None of these

Feedback

*Sn = n/2 * (a + l)*
*Sn = n * (a + l)/2*

✓ 26) If the radius of a cone is 48 cm and its height is 14 cm, then its slant height is * 1/1

- (●) 50 cm ✓
- ( ) 27.78 cm
- ( ) 25 cm

Feedback

l > r & h

✓ 27) Mr. Manohar in Bihar buys an article for ₹ 5000 from Mr. Raghu who is in Panjab. Mr. Manohar sells this article for ₹ 6000 to Ms. Nalini who is in Hyderabad. If the GST is 12%, what is the tax liability of Mr. Manohar? * 1/1

- (●) ₹ 120 ✓
- ( ) ₹ 720
- ( ) ₹ 300

Feedback

Tax liability = 12% of Profit
Tax liability = 12/100 x (6000 - 5000)
= 12 x 10
= ₹ 120

✓ 28) If the base area of a conical solid is 154 cm^2 and its height is 12 cm, then its volume is * 1/1

- 661 cm^3
- 1848 cm^3
- ◉ 616 cm^3 ✓

Feedback

V = 1/3 π r^2 h
V = 1/3 x 154 x 12
V = 154 x 4
V = 616 cm^3

✓ 29) If the 1st and 3rd term of an A.P. is 1 and 7 respectively, then the next 3 terms are * 1/1

- 1, 3, 7
- ◉ 10, 13, 16 ✓
- 1, 4, 7

Feedback

t1 = a = 1
t3 = a + 2d = 7
1 + 2d = 7
d = 6/2
d = 3
∴ the next three terms are 10, 13, 16

✓ 30) Mohit and Rajiv live in the same city. Mohit sells an article to Rajiv for ₹ 5000. If the transaction is under GST at the rate of 18%, how much is the Integrated GST paid by Rajiv? * 1/1

- ₹ 4500
- ₹ 9000
- ₹ 0 ✓

Feedback

Intra-state transaction of goods/services IGST is Nil (0)

Section B

42 of 50 points

Answer the Following Questions
[All questions are compulsory]

✓ Question-1(a): Mr. Gopal has a R.D. account in a bank. He deposited ₹ 800 per month for one and a half years. If he received ₹ 15084 at the time of maturity, find the rate of interest per annum. * 3/3

P = Rs 800 ; MV = Rs 15084 ; n = 18 months ; r = ?

MV = Pn + [Pn(n+1)r] / [2 x 12 x 100]
15084 = (800 x 18) + [800 x 18 x 19 x r] / [2 x 12 x 100]
15084 - 14400 = [800 x 18 x 19 x r] / [2 x 12 x 100]
684 = [800 x 18 x 19 x r] / [2 x 12 x 100]
r = [684 x 2 x 12 x 100] / [800 x 18 x 19]
r = 114/19
r = 6%

Thus, the rate of interest is 6%

Feedback

*M.V. = Pn + [P*n*(n+1) * r] / (2 * 12 * 100)*
*15084 = 800 * 18 + [800 * 18 * 19 * r] / (2 * 12 * 100) ----------(1m)*
15084 = 14400 + 114 r ----------(1m)
114 r = 684
r = 6% p.a. ----------(1m)

✓ Question-1(b): Solve by factorisation: 3x^2 - 15x + 18 = 0 * 3/3

3x^2 - 15x + 18 = 0
3x^2 - 6x -9x + 18 = 0
3x(x - 2) -9(x - 2) = 0
(x-2)(3x-9) = 0
x-2=0 or 3x-9=0
x=2 or 3x=9
x=2 or x=9/3=3

Thus, the value of x is either 2 or 3

Feedback

3x^2 - 15x +18 = 0
x^2 - 5x + 6 = 0 ----------(1m)
x^2 -2x - 3x + 6 = 0
(x -2)(x - 3) = 0 ----------(1m)
x = 2 or 3 ----------(1m)

✕ Question-1(c): If (7a + 2b) / (7a - 2b) = 5/3, use properties of proportion to find (a^2 + b^2) / (a^2 - b^2) * 3/4

(7a+2b)/(7a-2b) = 5/3
On applying Componendo and Dividendo,
(7a + 2b + 7a - 2b)/(7a + 2b - 7a + 2b) = (5+3)/(5-3)
14a/4b = 8/2
7a/2b = 4/1
a/b = (4 x 2)/(1 x 7)
a/b = 8/7
On squaring both sides,
a^2/b^2 = 64/49
On applying Componendo and Dividendo,
(a^2+b^2)/(a^2-b^2) = (64+49)/(64-49)
(a^2+b^2)/(a^2-b^2) = 113/15
(a^2+b^2)/(a^2-b^2) = 7 8/15

Thus the value of (a^2+b^2)/(a^2-b^2) is 113/15 or 7 8/15

Individual feedback

Should never write the ratio in mixed fraction

[(7a + 2b) + (7a - 2b)] / [(7a + 2b) + (7a - 2b)] = (5 + 3) / (5 - 3) { by Componendo and Dividendo } ---------- (1m)
14a / 4 b = 8 / 2
a / b = (4) x (2/7)
a / b = 8 / 7 ---------- (1m)
a^2 / b^2 = 64 / 49
(a^2 + b^2) / (a^2 - b^2) = (64 + 49) / (64 - 49) { by Componendo and Dividendo } ---------- (1m)
(a^2 + b^2) / (a^2 - b^2) = 113 / 15 ---------- (1m)

✕ Question-2(a): The polynomials 2y^3 - 7y^2 + ky - 6 and y^3 - 8y^2 + (2k + 1)y - 16 leave the same remainder when divided by (y - 2). Find the value of k. * 2/3

Let p(y) = 2y^3 - 7y^2 + ky - 6 and f(x) = y^3 - 8y^2 + (2k + 1)y - 16

Acc. to the question, both leave the same remainder when divided by (y-2).
By Remainder Theorem, p(2) = f(2)

2y^3 - 7y^2 + ky - 6 = y^3 - 8y^2 + (2k + 1)y - 16
2(2)^3 - 7(2)^2 + 2k = (2)^3 - 8(2)^2 + (2k+1)2 - 16
16 - 28 +2k - 6 = 8 - 32 + 4k + 2 - 16
-18 + 2k = -38 + 4k
38 - 18 = 4k - 2k
20 = 2k
k = 20/10
k =2

Thus, the value of k is 2.

Feedback

2(2)^3 - 7(2)^2 + k(2) - 6 = (2)^3 - 8 (2)^2 + (2k+1)(2) - 16 [for correct substitution in LHS / RHS 1 mark]
16 - 28 + 2k - 6 = 8 - 32 + 4k + 2 - 16
-18 + 2k = - 38 + 4k ----------(1m)
2k = 20
∴ k = 10 ---------- (1m)

✓ Question-2(b): By selling a chair for ₹ 75, Mohan gained as much percent as its cost. Calculate the cost of the chair. * 3/3

Let the cost of chair be x
SP is Rs 75
but, Profit % = CP

Acc. to the question,

P% = (Profit/CP)*100
x% = [(75 - x)/x] * 100
x^2 = 7500 - 100x
x^2 + 100x - 7500 = 0
x^2 + 150x - 50x - 7500 = 0
x(x+150) - 50(x+150) = 0
(x+150)(x-50) = 0
x+150=0 or x-50=0
x=-150 or x=50

Cost cannot be -ve , cost of chair is Rs 50.00

Feedback

Let x be the cost of the chair.
According to the question,
[CP + P% of CP = SP]
x + x% of x = 75 ----------(1m)
x + x^2/100 = 75
x^2 + 100x - 7500 = 0
x^2 + 150x - 50x -7500 = 0
(x + 150)(x - 50) = 0 ----------(1m)
x = -150 or 50
CP can not be -ve,
∴ Cost of the chair = ₹ 50 ----------(1m)

✓ Question-2(c): 4/4

Let $A = \begin{bmatrix} 1 & 0 \\ 2 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 3 \\ -1 & 0 \end{bmatrix}$

find : $A^2 + AB$.

Manan_Q2c - Ma...

Feedback

Correct A^2 ----------(1m)
Correct AB ----------(1m)
Correct substitution in A^2 + AB ----------(1m)
Final answer ----------(1m)

✓ Question-3(a): Find the 10th term from the end of the A.P. 9, 14, 19, ..., 259. * 3/3

tn = a + (n-1)d
259 = 9 + (n-1)*5
250 = 5n - 5
255 = 5n
n = 51, there are 51 terms in the AP

tr term from last = t(n-r+1) from first,
t10 = t(51-10+1)
t10 from last = t42 from first

tn = a+(n-1)d
t42 = 9 + (42 - 1)*5
t42 = 9 + (41 * 5)
t42 = 9+205
t42 = 214

Thus, 214 is the 10th term from last of the AP.

Feedback

a = 9, d = 5 and tn = 259
tn = a + (n-1)d
259 = 9 + (n-1) 5
n-1 = 50
n = 51 ----------(1m)
10th term from the end = (51 - 10 + 1)th term from the first
ie, t42 = a + 41d
= 9 + 41 x 5 ----------(1m)
= 9 + 205
t42 = 214
10th term from the end is 214 ----------(1m)

✕ Question-3(b): From a solid right circular cylinder with height 8 cm and radius of the base 6 cm, a right circular cone of the same height and same base is removed. Find the total Surface area of the remaining solid. * 0/3

TSA of Cylinder = 2πrh+2π r^2
TSA of Cone = πrl + πr^2

Left out area = TSA of Cylinde - TSA of Cone
=2πrh+2π r^2 - (πrl + πr^2)
=πr(2h + r - l)
=6π (2x8 + 6 -10)
= 6π (16 + 6 - 10)
=6π (12)
=72π
=226.28 sq.cm

Feedback

Total Surface area = CSA of cylinder + Base area of the cylinder + CSA of cone(inner surface)
TSA = 2πrh + πr^2 + πrl
l = √(h^2 + r^2)
l = √(8^2 + 6^2)
l = 10 cm ----------(1m)
TSA = πr (2h + r + l)
TSA = 22/7 6 (2*8 + 6 + 10) ----------(1m)*
*= 22/7 * 6 * 32*
= 4224/7
TSA = 603.43 cm^2 ----------(1m)

✓ Question-3(c): Ms. Leela deposited ₹ 800 per month in a bank for some months. If the M.V. of this account was ₹ 20400 and the rate of interest was 6% p.a. find the time in years for which the account was held. * 4/4

P = RS 800
MV = Rs 20400
r = 6%
n = ?

MV = Pn + [Pn(n+1)r]/[2 x 12 x 100]
20400 = 800n + [800n(n+1)6]/[2 x 12 x 100]
20400 = 800n + 2n^2 + 2n
2n*2 + 802n - 20400 = 0
n^2 + 401n - 10200 = 0
n^2 + 425n - 24n - 10200 = 0
(n+425)(n-24) = 0
n+425=0 or n-24=0
n=-425 or n=24

Time cannot be -ve, so n is 24 months, that is, time is 2 years.

Feedback

*M.V. = P n + [P *n * (n+1) *r] /(2 * 12 * 100)*
*20400 = 800n + [800 n (n+1) * 6] / (2 * 12 * 100) ----------(1m)*
2n^2 + 802n - 20400 = 0
n^2 + 401n - 10200 = 0 ----------(1m)
n^2 + 425n - 24n - 10200 = 0
(n + 425)(n - 24) = 0
n = -425 or 24 ----------(1m)
Number of months can not be -ve. ∴ n = 24
ie, The duration in which the account was held = 2 years ----------(1m)

✓ Question-4(a): Mohit is a dealer in Agra(UP), supplies goods worth ₹ 9000 to dealer Geeta in Banaras(UP). Geeta in turn supplies the same to a dealer Ramu in Patna(Bihar) at a profit of ₹ 3000. If the rate of GST is 18% and Ramu does not sell his goods further, find (i) the tax liability for Geeta, (ii) The bill amount paid by Ramu * 3/3

(i) Tax liability for Geeta = Tax on Profit = 18% of 3000 = 0.18 * 3000 = Rs 540.00

(ii) CP of goods for Ramu = CP of goods for Geeta + Profit earned by Geeta
= 9000 + 3000
= Rs 12,000.00
CGST = 0% ; SGST = 0% ; IGST = 18%
Tax to be paid = (18/100)*12000 = Rs 2160.00
Total Bill Amount be paid by Ramu = CP of goods for Ramu + Tax
= 12000 + 2160
= Rs 14,160.00
Thus, tax liability for Geeta is Rs 540.00 and Ramu has to pay Rs 14,160.00

Feedback

(i) Tax liability for Geeta = Profit made by her x GST
= 3000 x 18/100
= ₹ 540 ----------(1m)
(ii) Bill Amount paid by Ramu = S.P. + GST
= (9000 + 3000) + (18/100) x 12000 ----------(1m)
= 12000 + 2160
= ₹ 14,160 ----------(1m)

✕ Question-4(b): Solve the in-equation $13x + 5 < 15x - 4 < 7x - 12$, $x \in R$. * 2/3

$13x + 5 < 15x - 4 < 7x - 12$

$13x + 5 < 15x - 4$
$5+4<15x-13x$
$9<2x$
$4.5<x$

$15x - 4 < 7x - 12$
$15x-7x<-12+4$
$8x<-8$
$x<-8/8$
$x<-1$

Thus, $-1>x>4.5$

Solution Set = $\{x : -1>x>4.5 , x \in R\}$

Feedback

$13x + 5 < 15x - 4$
$5 + 4 < 15x - 13x$
$9 < 2x$
$9/2 < x$ ----------(1m)
and $15x - 4 < 7x - 12$
$15x - 7x < -12 + 4$
$8x < -8$
$x < -1$ ----------(1m)
∴ The solution set = $\{ x: x < -1$ and $x > 9/2, x \in R\}$ ----------(1m)

✓ Question-4(c): Find the value of k for which x = 3 is a solution of the equation x^2 -(k + 1)x + 6 = 0. Hence find the other root of the equation. * 4/4

x^2 -(k + 1)x + 6 = 0
3^2 -(k-1)3 + 6 = 0
9 - 3k - 3 + 6 = 0
12 - 3k = 0
12 = 3k
k = 12/3
k = 4

x^2 -(k + 1)x + 6 = 0
x^2 - (4+1)x + 6 = 0
x^2 - 5x + 6 = 0
x^2 - 3x -2x + 6 =0
x(x-3)-2(x-3)=0
(x-3)(x-2)=0
x-3=0 or x-2=0
x=3 or x=2

Thus, value of k is 4 and other root of the equation is 2.

Feedback

Since x = 3 is a solution of the equation x^2 - (k+1)x + 6 = 0 ,
(3)^2 - (k + 1)(3) + 6 = 0 ----------(1m)
9 - 3k - 3 + 6 = 0
12 = 3k
k = 4 ----------(1m)
∴ The equation is x^2 - (4 + 1)x + 6 = 0
ie, x^2 - 5x + 6 = 0 ----------(1m)
x^2 - 3x - 2x + 6 = 0
(x - 3) (x - 2) = 0
x = 3 or 2
∴ The other solution of the equation is x = 2 ----------(1m)

✕ Question-5(a): If x = (6ab) / (a + b), find (x + 3a) / (x - 3a) * 1/3

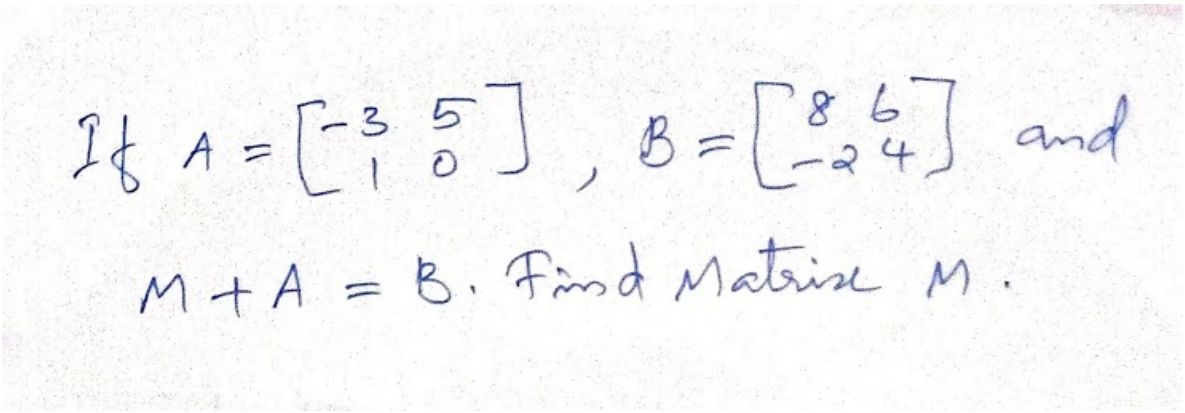
x = 6ab/a+b
x/3a = 2b/a+b
On applying componendo and dividendo,
(x+3a)/(x-3a) = [2b+(a+b)]/[2b-(a-b)]
(x+3a)/(x-3a) = (2b + a + b)/(2b - a + b)
(x+3a)/(x-3a) = (3b + a)/(3b-a)

Thus, value of (x+3a)/(x-3a) is (3b + a)/(3b-a)

Feedback

x / 1 = 6ab / (a + b)
x / 3a = 2b / (a + b) ----------(1m)
(x + 3a) / (x - 3a) = [2b + (a + b)] / [2b - (a + b)] { by Componendo and Dividendo} ----------(1m)
(x + 3a) / (x - 3a) = (a + 3b) / (b - a) ----------(1m)

✓ Question-5(b): 3/3



Manan_5b - Man...

Feedback

For substituting in M + A = B (1 mark)
For B - A (1 mark)
Matrix M (1 mark)

✓ Question-5(c): Find P∩Q and represent it on a number line, if P = { x: - 8 < 5x + 2 ≤ 17 , x ϵ I } and Q = { x: - 2 ≤ 3x + 7 < 17 , x ϵ R } 4/4

Manan_5c - Man...

Feedback

P = {x: - 8 < 5x + 2 ≤ 17 , x ϵ I}
- 8 < 5x + 2 and 5x + 2 ≤ 17
- 10 < 5x and 5x ≤ 15
-2 < x and x ≤ 3
ie, P = {x: -2 < x ≤ 3 , x ϵ I} ----------(1m)
P = { -1, 0, 1, 2, 3}
Q = { x: - 2 ≤ 3x + 7 < 17 , x ϵ R }
- 2 ≤ 3x + 7 and 3x + 7 < 17
-9 ≤ 3x and 3x < 10
-3 ≤ x and x < 10/3
ie, Q = { x: - 3 ≤ x < 10/3 , x ϵ R } ----------(1m)
∴ P∩Q = { -1, 0, 1, 2, 3} ----------(1m, if both P and Q are correct)
For representing P∩Q on number line (1 mark)