**S4 CORE MATHEMATICS,COMPREHENSIVE ,MARKING SCHEME 2019**

**Answer1 5marks**

5x + 3y = 12

 7x + 2y = 19

5x + 3y = 12 ... .... (1)

 7x + 2y = 19 ... .... (2)

 We multiply (1) by 2 and (2) by –3:

10x + 6y = 24 –21x –6y = –57

Adding the two equations term by term gives: –11x = –33 x = 3

Substituting x = 3 into (1) gives:

5(3) + 3y = 12 15 + 3y = 12 3y = –3 y = –1

Hence x = 3, y = –1 is the solution to the system of equations.

**Answer 2 3marks**



**Answer3 4marks**

x2 – 3x + 2 = 0;

 a = 1, b = –3, c = 2

∆ = b2 – 4ac = (–3)2 – 4(1) (2) = 9 – 8 = 1

X

 = 2a –b ± ∆/2a =  x = 2 or x = 1

**Answer 4 5marks**

 12x 2 – x – 1

a × c = –12 and b = –1 4 × 3 = 12.

Adjust signs of 4 and 3 so that their sum is -1.

Then , –4 + 3 = –1

 12x 2 – x – 1 = 12x 2 – 4x + 3x – 1 = 4x (3x – 1) + 1(3x – 1) =

 (4x + 1)(3x – 1)

**Solution 5 (8marks)**

**a**) In equilibrium state, Qd = Qs

 –x + 6 = 4x – 4

5x = 10

x = 2 Thus,

the equilibrium cost of commodity is 2

 b) When the cost is 2, then the quantity is –2 + 6 = 4.

**answer 6) 12marks**

 **a)**

a

b)





c)

d)

 (**3marks)**

**answer 7 6marks**

a)





b)

**ANSWER 8 6marks**



is the derivative or slope of the function at any point it is also the rate of change in y as x change.

**Answer 9 5marks**

When , 

So the point of contact is(4,4)

**answer 10 6marks**





**Answer 11 ( 10marks)**



You have to find  and 







Many values of  and  are different from 0 ( ) for ; therefore vectors  and  are linearly dependent.

**Answer 12 6marks**

**First calculate A.B=** 



 2nd calculate B.A=

Therefore matrices A and B are inverses of each other.

**Answer 13 (4marks)**

**Let**  be appoint in the line, then 





**answer 14:5marks**





By comparing with 

a) its Centre of the circle is  and

b)its radius is 

**Answer 15 (15marks)**

Complete the frequency table below (**8marks**)

|  |  |  |
| --- | --- | --- |
| Marks, | Frequency  |  |
| 40 | 2 | 80 |
| 51 | 1 | 51 |
| 56 | 3 | 168 |
| 62 | 5 | 310 |
| 70 | 4 | 280 |
| 75 | 3 | 225 |
| 78 | 2 | 156 |
|  | 20 | 1270 |

1. Calculate the mean marks (**3marks)**

The mean marks is 

1. What is the modal marks (**2marks)**

The modal marks is 62 because it has the highest frequency “5”

1. Find the highest marks (**1marks)**

**The highest marks is 78**

1. Find the lowest marks (**1marks)**

**The lowest marks is 40**