**S5 MATH SUBSIDIARY COMPREHENSIVE MARKING SCHEME 2019**

**Solution1)** **5MARKS**

=

 = is proved

**Solution:**1ii **5MARKS**

 + = 2-3

 + = 2-3

 + = 2-3

2-3

answer 2a **3marks**



**Answer 2b 3marks**



 **Answer 3 6marks**

 





Answer4 **4marks**



 Based on this pattern, 

Answer 5 **(3marks)**

Starting with the number at the end of the sequence, divide by the number immediately preceding it

32 / 16 = 2

Continue to divide to ensure that the pattern is the same for each number in the series.

16 / 8 = 2

8 / 4 = 2

**Solution 6 6marks**

The distance through which the body falls in the first, second, third, fourth,…seconds form an arithmetic progression: 16,48,80,112,

Here,  and  Distance through which it falls in 11th second is 11th term of the arithmetic progression or



Therefore the distance through which it falls in 11th second is 336m

**Solution7**  **5marks**

 ;

 



Therefore the account will have 

**Answer 8 6marks**

write out the square on the right-hand side:

*log*2(*x*2) = (*log*2(*x*))2 *log*2(*x*2) = (*log*2(*x*)) (*log*2(*x*))

Then apply the log rule to move the "squared", from inside the log on the left-hand side of the equation, out in front of that log as a multiplier. Then I'll move that term to the right-hand side:

2*log*2(*x*) = [*log*2(*x*)] [*log*2(*x*)]
0 = [*log*2(*x*)] [*log*2(*x*)]  –  2*log*2(*x*)

This may look bad, but it's nothing more than a factoring exercise at this point. So I'll factor, and then I'll solve the factors by using The Relationship:

0 = [*log*2(*x*)] [*log*2(*x*) – 2]
*log*2(*x*) = 0  or  *log*2(*x*) – 2 = 0
20 = *x*   or  *log*2(*x*) = 2
1 = *x*  or  22 = *x* 1 = *x*  or  4 = *x*



**Solution 9: 4marks**



Remove this indeterminate case by l’Hospital rule



Answer 10a) **3marks**



**answer10 b 2marks**



**Solution11) 6marks**

P(E and F) = 0.20

P(E) = 0.80

P(F|E) = P(E and F)/P(F) = 0.20/0.80 = 1/4 = 0.25

Answer 12 **(10marks)**

 is equivalent to

).... by inverse matrix method

**/**

Minor

Cof

Adj

answer13

a)Complete the distribution table below (**12marks)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| 3 | 5 | -0.8 | 0.6 | -0.48 |
| 6 | 3 | 2.2 | -1.4 | -3.08 |
| 4 | 6 | 0.2 | 1.6 | 0.32 |
| 3 | 1 | -0.8 | -3.4 | 2.72 |
| 3 | 7 | -0.8 | 2.6 | -2.08 |
| 19 | 22 |  |  | -2.6 |
|  |  |  |  |  |

b)Covariance of  and  **( 3marks)**

covariance of x and y 

 

**answer 14 5marks**





**Answer 15 5marks**







**answer 16a 2marks**

a)the scalar product of  and ;



**Answer 16b )……. .2marks**



