1. Te table below gives the marks scored by 40 students in a mathematics test

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Class** | **1-10** | **11-20** | **21-30** | **31-40** | **41-50** | **51-60** | **61-70** | **71-80** | **81-90** |
| **No. of students** | **1** | **3** | **4** | **5** | **9** | **6** | **5** | **3** | **4** |

a) State the modal class ( 1mk)

b) Estimate

 i) The median marks ( 3mks)

 ii) The mean ( 4mks)

 c) Draw a Histogram doe data above ( 2mks)

2. Sinmplify the expression 4x2 – y2

 2x2 – 7xy + 3y2 ( 3 mks)

1. a) Complete the table below for the equation y = 2x3 + x2 – 5x + 2 ( 2mks)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| X | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| 2x3 | -54 | -16 | -2 | 0 | 2 | 16 | 54 |
| X2 | 9 | 4 | 1 | 0 | 1 |  | 9 |
| -5x | 10 | 0 |  |  |  | -10 |  |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Y | -28 |  | 6 |  | 0 |  | 50 |

b) Draw the graph of y = 2x3 + 2x2 – 5x + 2 ( 4mks)

c) By using your graph in (bi above solcve the equation

 i) 0 = 2x3 + x2 - 11x -10 ( 2mks)

 ii) 2x3 + x2 - 5x = 1

4. Factrorise x2 – y2 hence find the exact valur of 15572 – 15472 ( 3mks)

3. The length and breath of a rectangular floor were measured and found to be 4.1 m and 2.2 m respectively. If possible error of 0.01 m was made in each of the measurements, find the:

* 1. Maximum and minimum possible area of the floor
	2. Maximum possible wastage in carpet ordered to cover the whole floor

20. a) If P,Q and R are the points (2,-4), (4,0) and (1,6) respectively. Use the vector methodto find the co-ordinates of points S given that PQRS is a Parallelogram (3 marks)

b) The positions vectors of point A and B are a and b respectively. Cis another point with Positions vector **c** = 3/2 **b** – ½ **a.** ( 1mk)

 Express in terms of **a** and **b**

i) AC

 ii) AB. Hence show that A,B and C are collinear ( 3marks)