**Pre-Calculus Mathematics 12**

Level

Mark

%

Total

/20

/8

/6

/6

**Chapter 3 Test**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_

Mr. Formaran

**True or False 12 marks**

\_\_\_\_\_\_\_\_\_\_1. End behaviours: The tendency of the (y values) of a function as

the value of x tends toward

\_\_\_\_\_\_\_\_\_\_2. y = x3 + 2x2 – x – 5 has an odd degree.

\_\_\_\_\_\_\_\_\_\_3. A function with even degree has end behaviour 2 1

\_\_\_\_\_\_\_\_\_\_4. y = x3 + 2x2 – x – 5 has 1 – 5 possible x-intercepts

\_\_\_\_\_\_\_\_\_\_5. 3x + 6 divided by 3 = x + 2

\_\_\_\_\_\_\_\_\_\_6. x2 + 5x + 6 divided by x + 3 = x + 2

\_\_\_\_\_\_\_\_\_\_7. x2 – x + 2 divided by x -2 will have a zero remainder

\_\_\_\_\_\_\_\_\_\_8. x + 1 is a factor of x2 – 1

\_\_\_\_\_\_\_\_\_\_9. Synthetic division can be used to find the factors of a function.

\_\_\_\_\_\_\_\_\_10. In a factor (x + 3), the value of a will be -3.

\_\_\_\_\_\_\_\_\_11. Quadratic function always has end behaviour 2 1

\_\_\_\_\_\_\_\_\_12. If 0 divided by 1 is 0, then, 1 divided by 0 is 0.

**Section 3.1 8 marks**

Fill in the blanks

Chart, line chart

Description automatically generatedChart, line chart

Description automatically generated

|  |  |  |
| --- | --- | --- |
| End Behaviours | | |
| Degree | (+) | (-) |
| Odd (1) |  |  |
| Even (2) |  |  |
| Odd (3) |  |  |
| Even (4) |  |  |
| Odd (5) |  |  |

End behaviours: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ End behaviours: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Domain: \_\_\_\_\_\_\_\_\_ Domain: \_\_\_\_\_\_\_\_\_\_\_

Range: \_\_\_\_\_\_\_\_\_\_ Range: \_\_\_\_\_\_\_\_\_\_\_\_

Number of possible x-int: \_\_\_\_\_\_\_ Number of possible x-int: \_\_\_\_\_\_\_

Identify the characteristics of the graph of each polynomial function. **8 marks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Function | Degree/(odd or even) | Possible  x-intercept | Max/Min | y-intercept |
| x4 + 3x3 - x2 - 4 | \_\_\_\_\_\_ / \_\_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_ | \_\_\_\_ |
| -3x3 – x – 3 | \_\_\_\_\_\_ / \_\_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_ | \_\_\_\_ |
| x5 – 3x - 1 | \_\_\_\_\_\_ / \_\_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_ | \_\_\_\_ |
| -x2 – 1 | \_\_\_\_\_\_ / \_\_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_ | \_\_\_\_ |

**Section 3.2 6 marks**

Divide by synthetic division

x3 + 9x2 + 23x + 15; x + 5 x3 – x2 – 14x + 25; x – 3

8x5 + 32x4 + 5x + 20; x + 4

**Section 3.3 6 marks**

Solve the following using the factor theorem and rational theorem as necessary.

x3 – x2 – 14x + 25 x4 – x3 + 14x2 – 16x – 32

25x3 + 150x2 + 131 x + 30