**Design & Technology**

**Mathematics for D&T –** Coordinates and Geometry

**Materials required for questions**

* Pencil
* Rubber
* Calculator

**Instructions**

* Use black ink or ball-point pen
* Try answer all questions
* Use the space provided to answer questions
* Calculators can be used if necessary

**Advice**

* Marks for each question are in brackets
* Read each question fully
* Try to answer every question
* Don’t spend too much time on one question

**Good luck!**

**Q1.** The table below shows a set of coordinates.

|  |
| --- |
| Path |
| (0,10) |
| (10,10) |
| (15,5) |
| (15,0) |
| (0,0) |

Plot the path and calculate the area of the shape **(3 marks)**

**Q2.** The table shows the geometry of a shape. Using the coordinates draw the shape and calculate the area bound by the external and internal paths **(4 marks)**

|  |  |
| --- | --- |
| Internal Path | External path |
| Circle with a radius of 2.5 with centre (0,1) | (5, 4) |
| (5, -3) |
| (-6, -3) |
| (-6, 4) |

**Q3.** The table below shows a series of coordinates for a product that is being laser cut.

|  |  |
| --- | --- |
| Internal path | External path |
| (0,10) | (-2, 12) |
| (10,10) | (12, 12) |
| (5, 0) | (12, -2) |
|  | (-2, -2) |

Plot the external and internal paths **(4 marks)**

**Q4.** Complete the table below to show the coordinates of the shape and calculate the area of the shape **(3 marks)**

|  |
| --- |
| Coordinates |
| (0, 0) |
|  |
|  |

A diagram of a triangle with numbers and lines

Description automatically generated

**Q5.** Complete the table labelling all the coordinates of the shape below **(6 marks)**

|  |
| --- |
| Coordinates |
| (0, 0) |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

**A drawing of a rectangular object with numbers and lines

Description automatically generated**

**Answers**

**Q1.**

A graph of a line

Description automatically generated

Area = 137.5

**Q2.**

**­A graphing circle with a dot in the center

Description automatically generated**

Area = 57.4

**Q3.**

A graph of a triangle with points and lines

Description automatically generated

**Q4.**

|  |
| --- |
| Coordinates |
| (0, 0) |
| (0, 651) |
| (398, 0) |

Area = 129,549

**Q5.**

|  |
| --- |
| Coordinates |
| (0, 0) |
| (0, 400) |
| (100, 400) |
| (100, 300) |
| (350, 100) |
| (600, 300) |
| (600, 400) |
| (700, 400) |
| (700, 0) |