Differentiation and Graphs GREEN

1) a)

Find

b) The point lies on the curve with equation

The gradient of the curve at is

Find the coordinates of .

2)

a) Find

The curve with equation has two turning points.

b)   Work out the coordinates of these two turning points. Show your working clearly.

3)

a) Find

The curve with equation has two stationary points.

b) Work out the coordinates of these two stationary points.

4) The curve with equation has a minimum at point .

Find the coordinates of . Show your working clearly.

5) a) Differentiate with respect to

i)

ii)

b) The curve with equation has one turning point.

Find the coordinates of this turning point. Show your working clearly.

6) A curve has equation

a) For this curve find

i)

ii) the coordinates of the turning point

b) State, with a reason, whether the turning point is a minimum or a maximum.

Differentiation and Graphs AMBER

1) a)

Find

b) The point lies on the curve with equation

Solve for .

Don’t forget to find too!

The gradient of the curve at is

Find the coordinates of .

2)

a) Find

The curve with equation has two turning points.

Solve for .

Don’t forget to find too!

b)   Work out the coordinates of these two turning points. Show your working clearly.

3)

a) Find

b) The curve with equation has two stationary points. Work out the coordinates of these two stationary points.

Solve for .

Don’t forget to find too!

4) The curve with equation has a minimum at point .

Solve for .

Don’t forget to find too!

Find the coordinates of . Show your working clearly.

5) a) Differentiate with respect to

i)

Use laws of indices

ii)

b) The curve with equation has one turning point.

Solve for .

Don’t forget to find too!

Find the coordinates of this turning point. Show your working clearly.

6) A curve has equation

a) For this curve find

i)

ii) the coordinates of the turning point

b) State, with a reason, whether the turning point is a minimum or a maximum.

What shape is the graph?

Differentiation and Graphs RED

1) a)

Multiply the coefficient of by the index, then reduce the index by 1.

Find

Solve for .

Don’t forget to find too!

b) The point lies on the curve with equation

The gradient of the curve at is

Find the coordinates of .

2)

Multiply the coefficient of by the index, then reduce the index by 1.

a) Find

The curve with equation has two turning points.

Solve for .

Don’t forget to find too!

b)   Work out the coordinates of these two turning points. Show your working clearly.

3)

a) Find

b) The curve with equation has two stationary points. Work out the coordinates of these two stationary points.

Solve for .

Don’t forget to find too!

4) The curve with equation has a minimum at point .

Solve for .

Don’t forget to find too!

Find the coordinates of . Show your working clearly.

5) a) Differentiate with respect to

i)

Use laws of indices

ii)

b) The curve with equation has one turning point.

Solve for .

Don’t forget to find too!

Find the coordinates of this turning point. Show your working clearly.

6) A curve has equation

a) For this curve find

i)

ii) the coordinates of the turning point

b) State, with a reason, whether the turning point is a minimum or a maximum.

What shape is the graph?