Name:

Level 2 Further Maths

Increasing/Decreasing Functions

Corbettmaths

Ensure you have: Pencil or pen

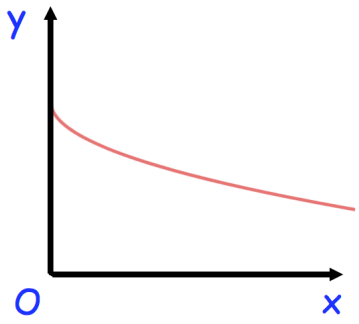
Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

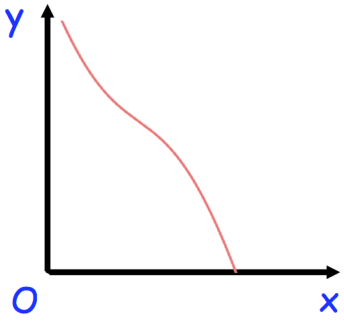
Revision for this topic

www.corbettmaths.com/more/further-maths/

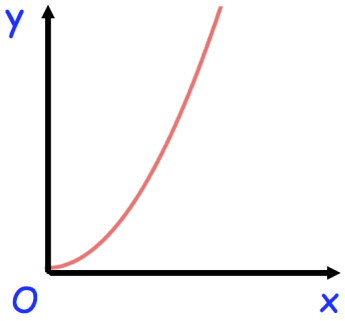
1. Shown below are three graphs.



Graph 1



Graph 2



Graph 3

Complete the following

	Increasing function	Decreasing function
Graph 1	☐	☑
Graph 2	☐	☐
Graph 3	☐	☐

(1)

---

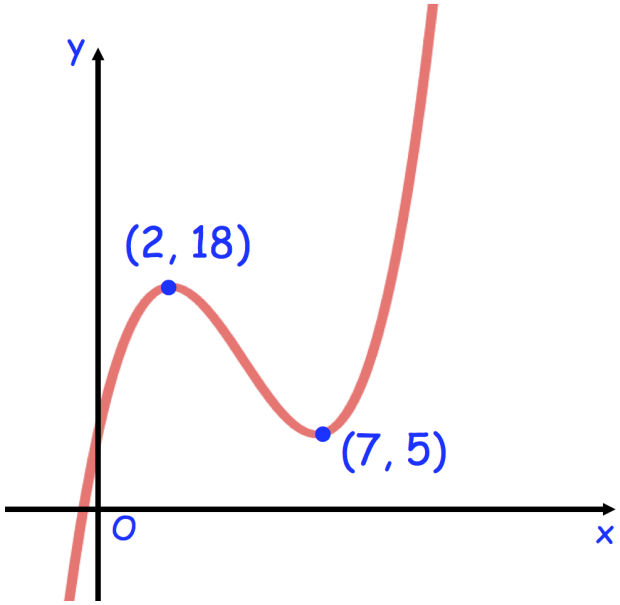
2. For what values of x is $y = x^2$ an increasing function?

.....

(1)

3. Shown below is the graph of $y = f(x)$

The point (2, 18) is a maximum point and the point (7, 5) is a minimum point.



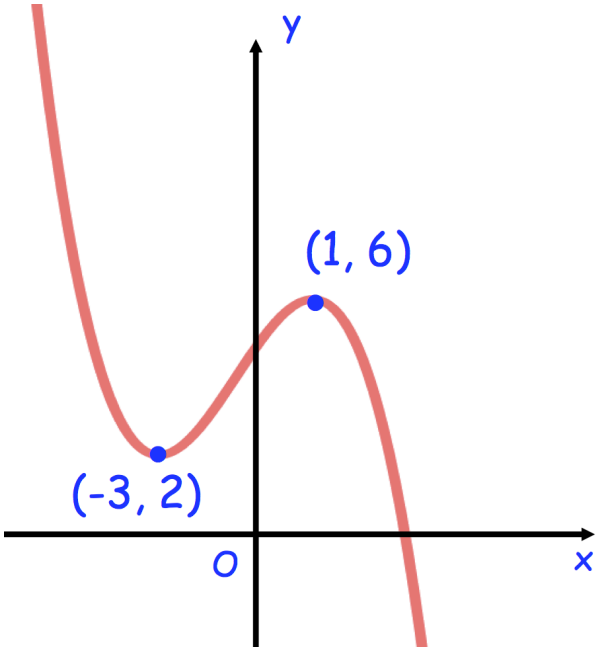
Write down the range of values of x for which $f(x)$ is an decreasing function.

.....

(2)

4. Shown below is the graph of $y = f(x)$

The point (−3, 2) is a minimum point and the point (1, 6) is a maximum point.



Write down the range of values of x for which $f(x)$ is an increasing function.

.....

(2)

5. For what values of x is $y = x^2 - 2x - 15$ an increasing function?

.....

(3)

---

6. Find the range of values of x for which the function

$$f(x) = 3 + 10x - 8x^2$$

is decreasing.

.....

(4)

7. Find the values of x for which $y = 10 + 2x^2 - 4x^3$ is a decreasing function.

……..

(4)

---

8. Find the values of x for which $y = 75x - 5x^3$ is an increasing function

……..

(4)

9. Given $f(x) = 3x^3 - 9x^2 + 10x + 1$

Show $f(x)$ is a increasing function for all values of x

(4)

10. Given $f(x) = -x^3 + 3x^2 - 7x - 1$

Show $f(x)$ is a decreasing function for all values of x

(4)