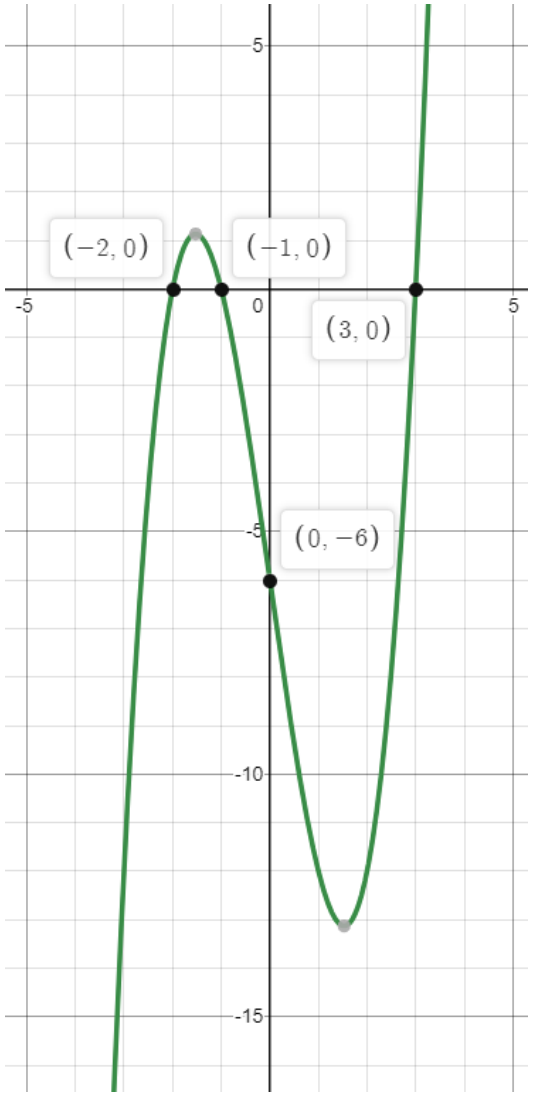
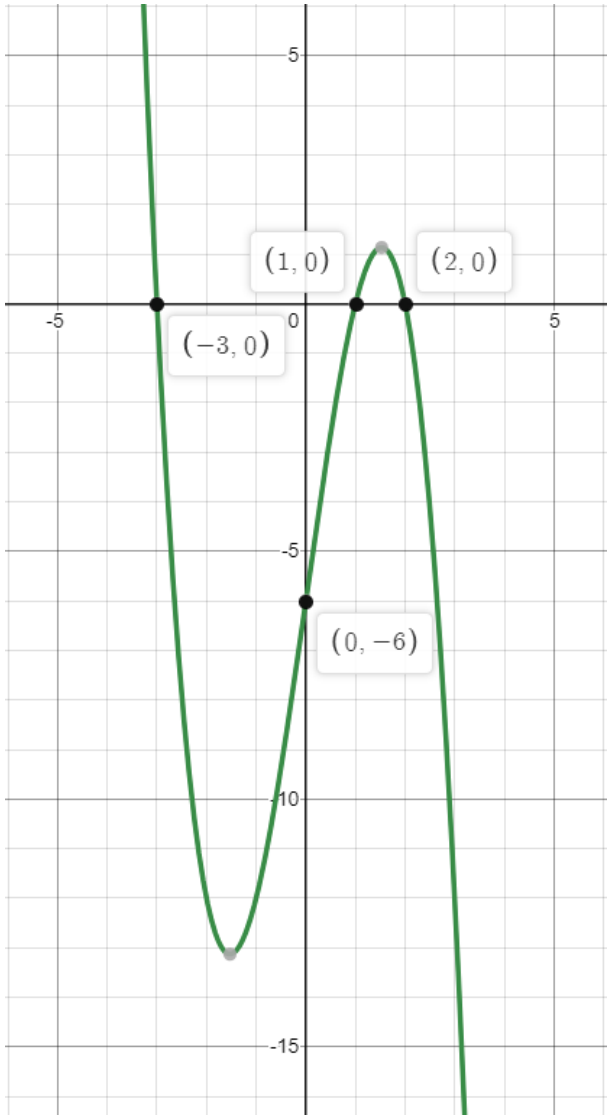
4.1) Cubic graphs

Worked example	Your turn
Sketch the graph of: $y = (x + 1)(x + 2)(x + 3)$	Sketch the graph of: $y = (x + 1)(x + 2)(x - 3)$
$y = (x + 1)(x - 2)(x + 3)$	

Worked example	Your turn
Sketch the graph of: $y = (x + 1)(x - 2)(3 - x)$ $y = (x - 1)(x - 2)(3 - x)$	Sketch the graph of: $y = (x - 1)(x + 3)(2 - x)$ 

Worked example

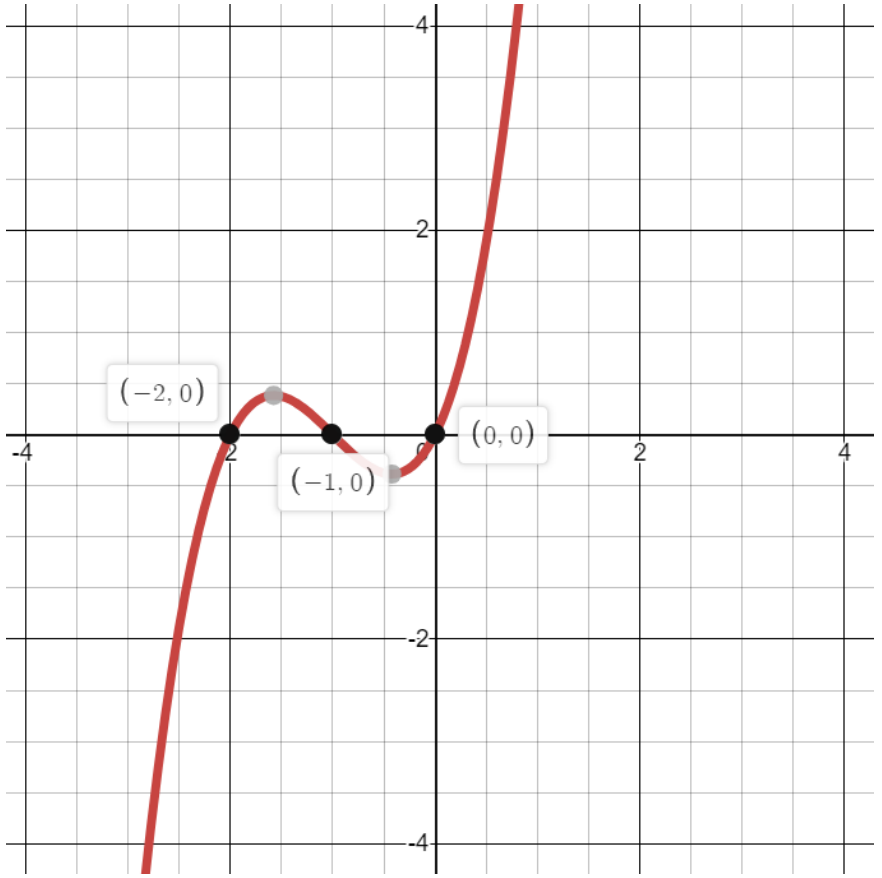
Sketch the graph of:

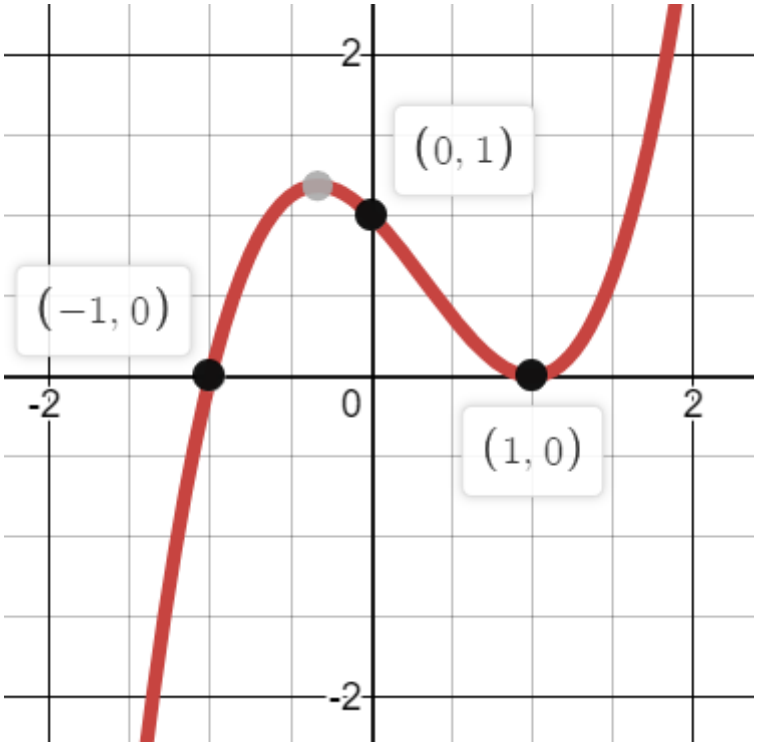
$$y = x(x + 3)(x + 4)$$

Your turn

Sketch the graph of:

$$y = x(x + 1)(x + 2)$$



Worked example	Your turn
Sketch the graph of: $y = (x+2)^2(x-2)$	Sketch the graph of: $y = (x-1)^2(x+1)$ 

Worked example

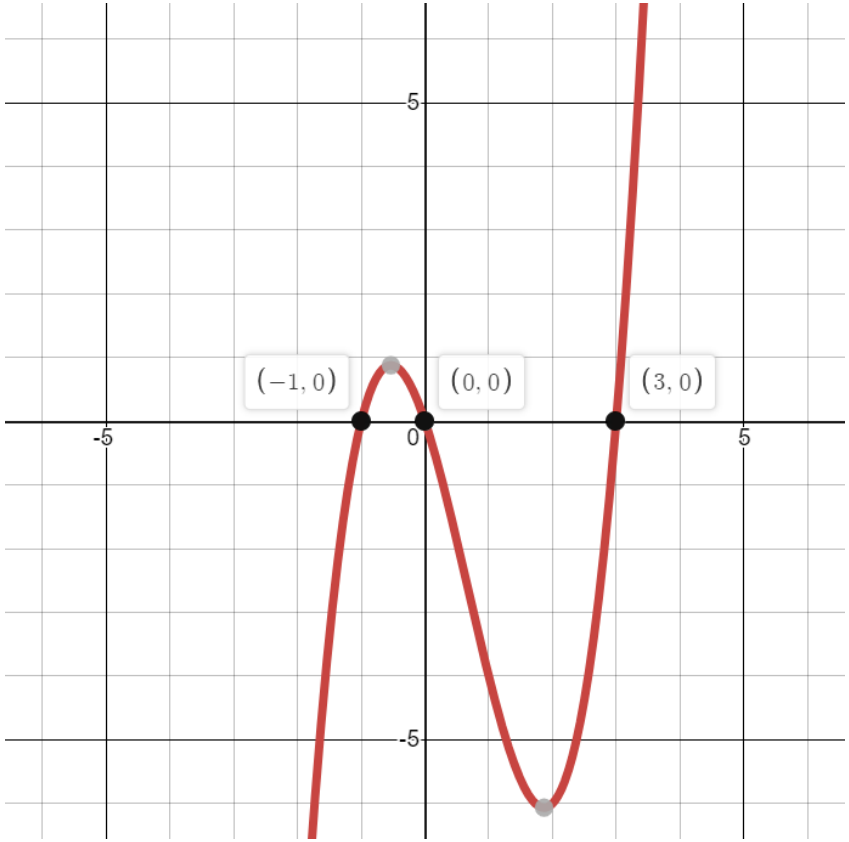
Sketch the graph of:

$$y = x^2 - 4x^2 - 5x$$

Your turn

Sketch the graph of:

$$y = x^3 - 2x^2 - 3x$$



Worked example

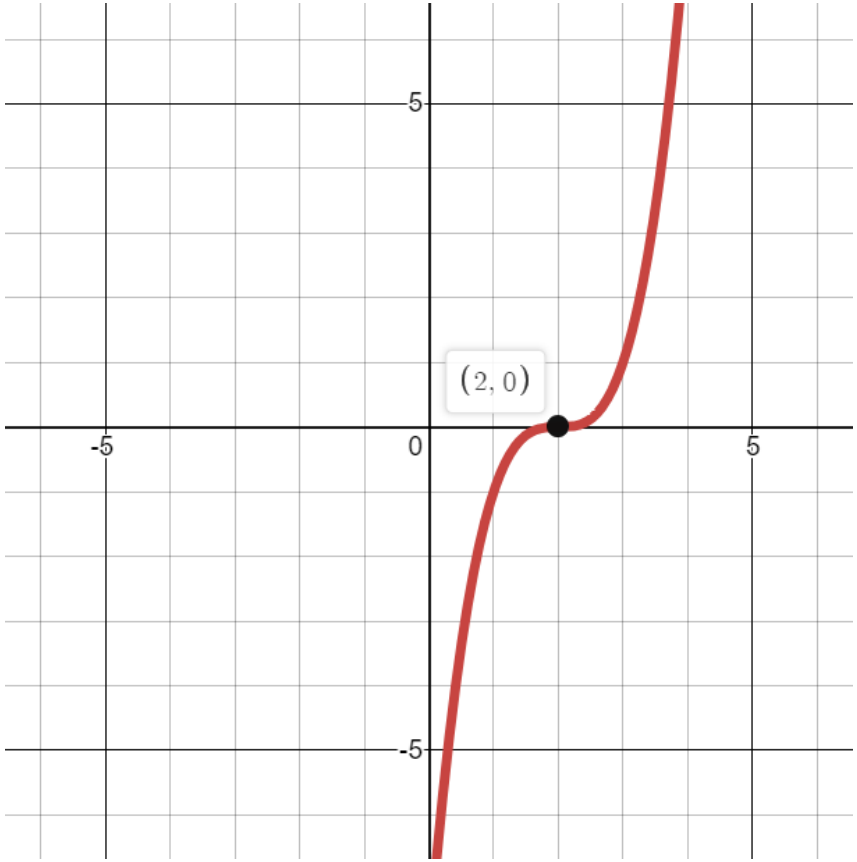
Sketch the graph of:

$$y = (x + 4)^3$$

Your turn

Sketch the graph of:

$$y = (x - 2)^3$$



Worked example

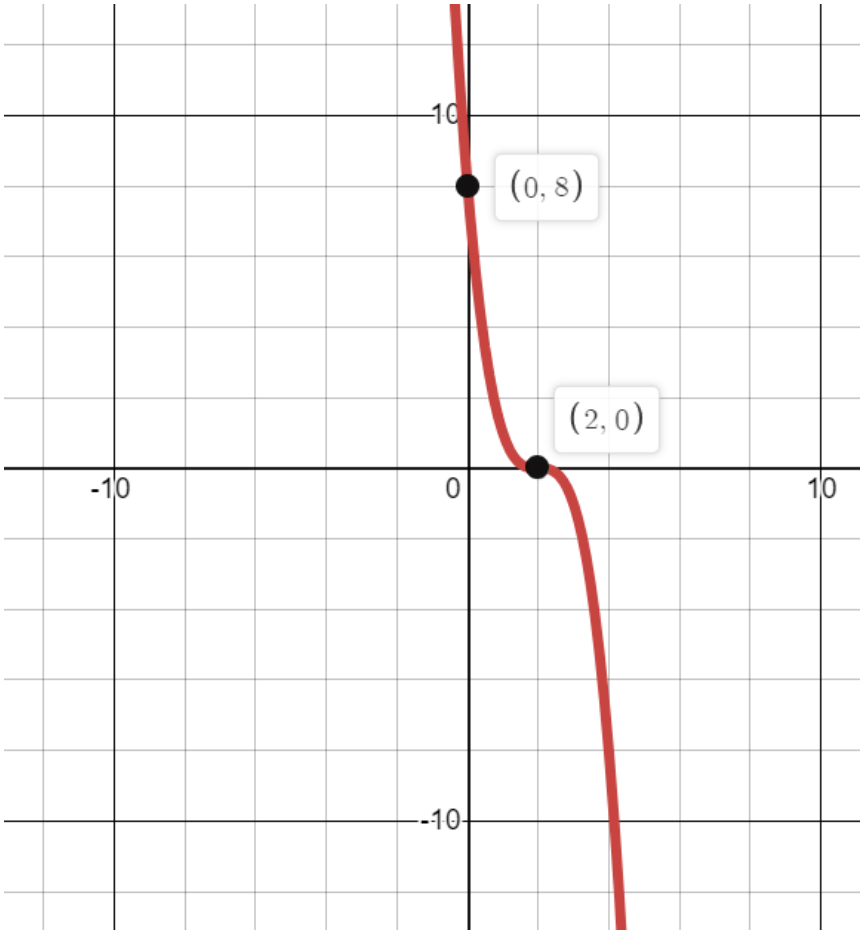
Sketch the graph of:

$$y = -(x + 4)^3$$

Your turn

Sketch the graph of:

$$y = -(x - 2)^3$$



Worked example

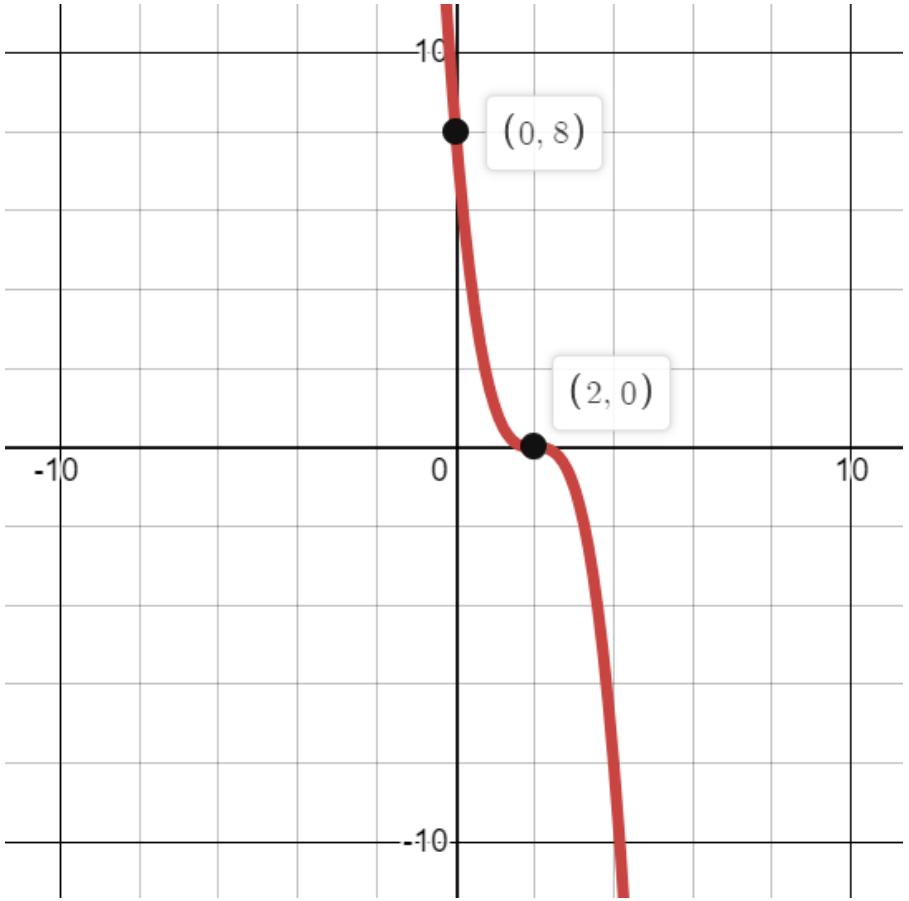
Sketch the graph of:

$$y = (4 - x)^3$$

Your turn

Sketch the graph of:

$$y = (2 - x)^3$$



Worked example

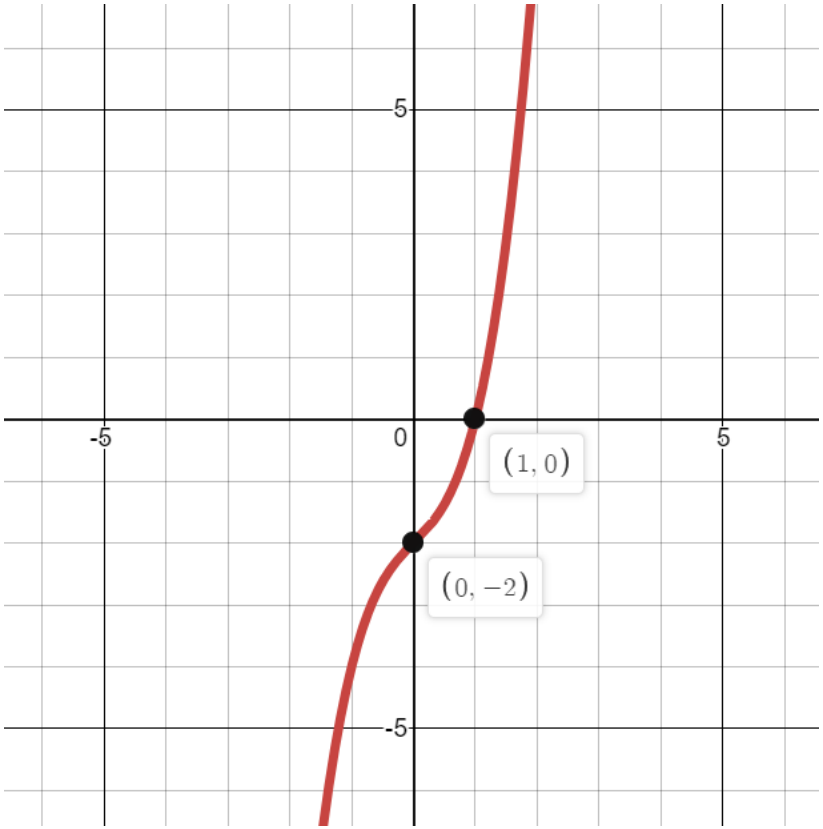
Sketch the graph of:

$$y = (x + 2)(x^2 + 2x + 4)$$

Your turn

Sketch the graph of:

$$y = (x - 1)(x^2 + x + 2)$$



Worked example

Sketch the graphs of:

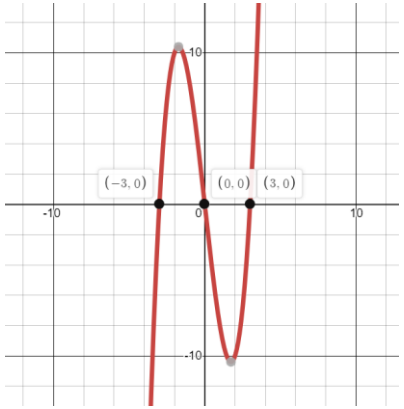
$$y = x^3 - 16x$$

$$y = x^3 - 16x^2$$

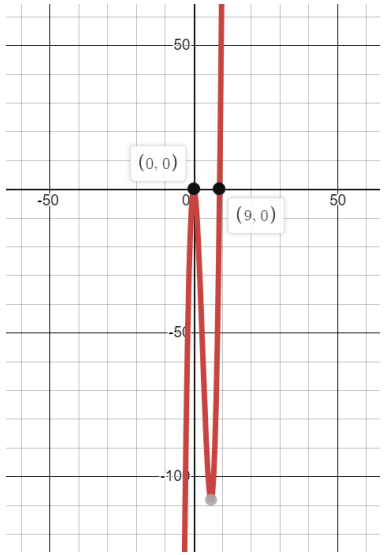
Your turn

Sketch the graphs of:

$$y = x^3 - 9x$$

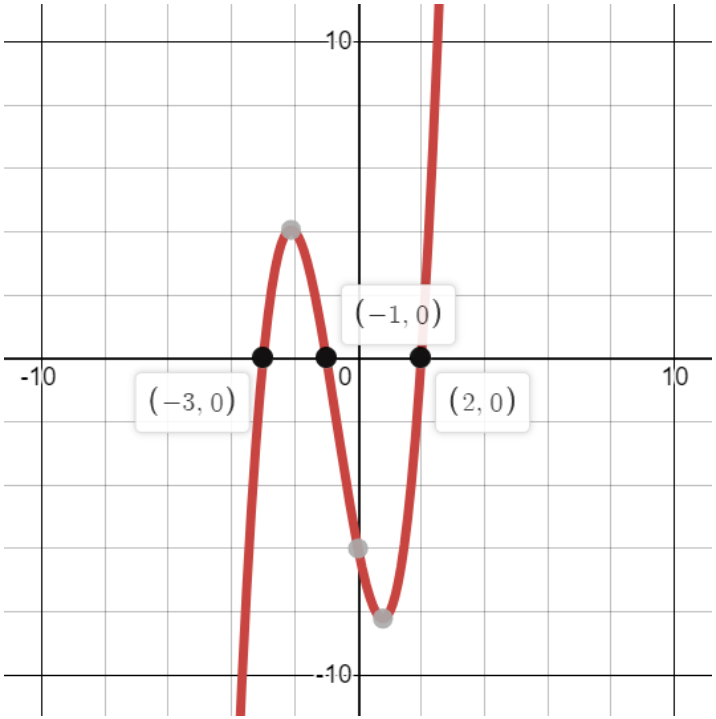


$$y = x^3 - 9x^2$$



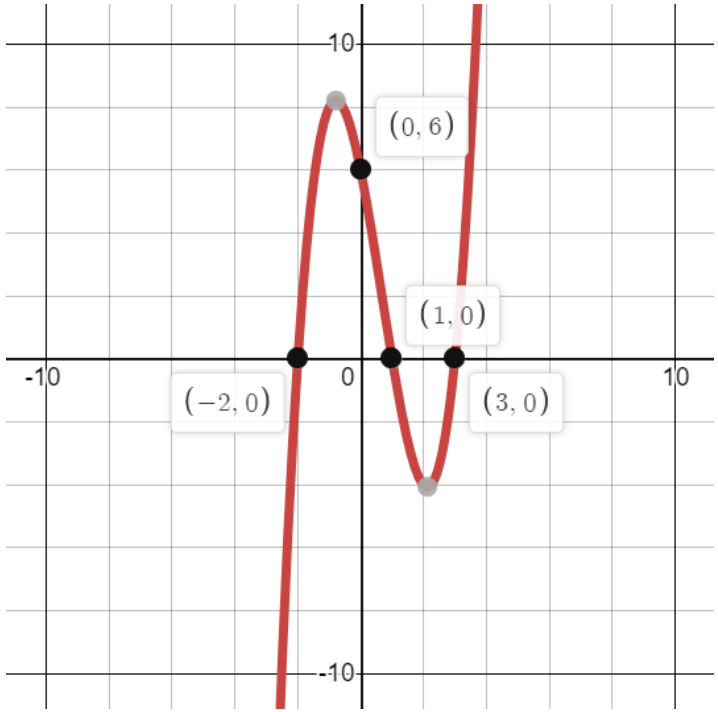
Worked example

The graph of $y = ax^3 + bx^2 + cx + d$ is shown where $a, b, c, d \in \mathbb{R}$.
Find the value of a, b, c and d



Your turn

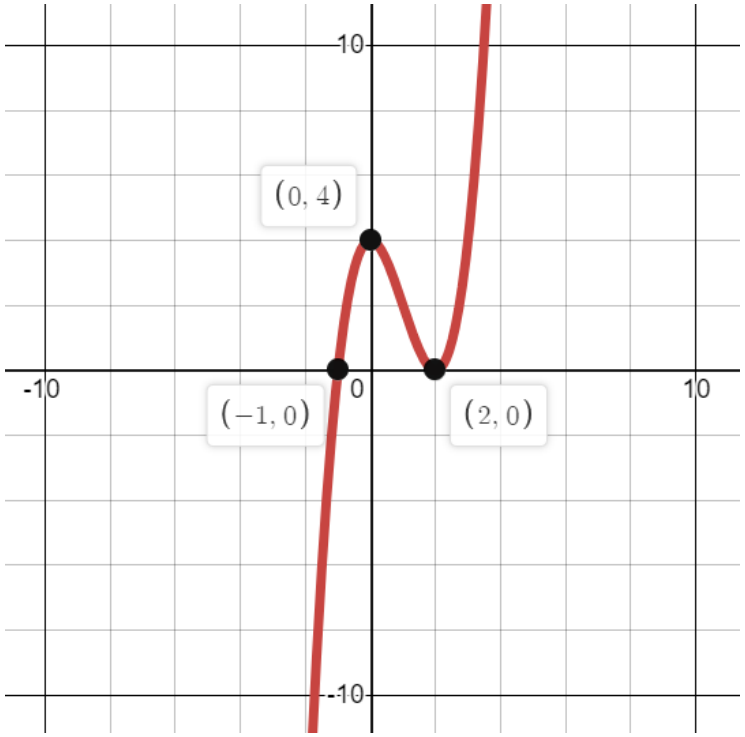
The graph of $y = ax^3 + bx^2 + cx + d$ is shown where $a, b, c, d \in \mathbb{R}$.
Find the value of a, b, c and d



$a = 1, b = -2, c = -5, d = 6$

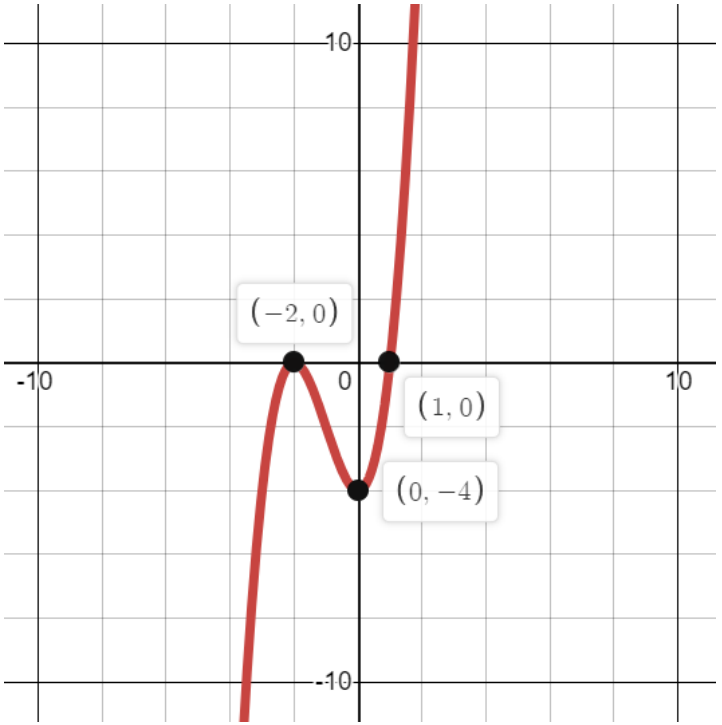
Worked example

The graph of $y = ax^3 + bx^2 + cx + d$ is shown where $a, b, c, d \in \mathbb{R}$.
Find the value of a, b, c and d



Your turn

The graph of $y = ax^3 + bx^2 + cx + d$ is shown where $a, b, c, d \in \mathbb{R}$.
Find the value of a, b, c and d



$a = 1, b = 3, c = 0, d = -4$

Worked example	Your turn
A curve is a positive cubic, touches the x-axis at 3 and crosses the x-axis at -2. Write a possible equation for the curve.	A curve is a positive cubic, touches the x-axis at 3 and crosses the x-axis at -2. Write a possible equation for the curve. $y = (x-3)^2(x+2)$