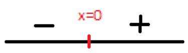
$Y=x^3$

First let's find y-intercepts: if $x=0$ then, obviously, $y=0$.

Next, we find points where graph intercepts x-axis: $x^3=0$ whence $x=0$.

Now we can find intervals of same sign for our function:



Then we find the first derivative: $y'=3x^2$

$Y'>=0$ for real x therefore y is monotonically increasing function.

Knowing the first derivative, we can find critical points:

$3x^2=0$ whence $x=0$

Now we need to find out if it's point of extremum or not. For that we find the second derivative:

$Y''=6x$

$y''(0)=0$ therefore point $x=0$ is not an extremum. Instead we can say that it's point of inflection.

$Y''<0$ for $x<0$, therefore y is concave for $x<0$, and $y''>0$ for $x>0$ therefore y is convex for $x>0$.

To build the graph properly, we need a couple of points. We can pick arbitrary values, say, $x=-1$ and $x=1$:

$Y(-1)=-1$, $y(1)=1$.

Thus, we have enough information to build the graph: