

Section 2.10 Graphs of cubic polynomials

7. Given $f(x) = (x+2)(x-1)(x-3)$, find the values of $f(0)$, $f(\frac{1}{2})$ and $f(2)$.

Hence draw a rough sketch of the curve.

$$f(0) = (0+2)(0-1)(0-3) = (2)(-1)(-3) = 6$$

$$f\left(\frac{1}{2}\right) = \left(\frac{1}{2}+2\right)\left(\frac{1}{2}-1\right)\left(\frac{1}{2}-3\right) = \left(\frac{5}{2}\right)\left(-\frac{1}{2}\right)\left(-\frac{5}{2}\right) = \frac{25}{8} = 3\frac{1}{8}$$

* Answer in the book is incorrect

$$f(2) = (2+2)(2-1)(2-3) = (4)(1)(-1) = -4$$

* from factors we know $(-2, 0)$, $(1, 0)$ and $(3, 0)$ are points on the curve

x	f(x)
-2	0
0	6
$\frac{1}{2}$	$3\frac{1}{8}$
1	0
2	-4
3	0

