A-Level Starter Activity

Jahwa Maths

Topic: Quartic Graphs

Chapter Reference: Pure 1, Chapter 4

8 minutes

1. Sketch the graph of $f(x) = (x + 7)(x + 5)(x + 2)(2x – 3)$, and state the coordinates of the intersection with the x-axis. **(3)**

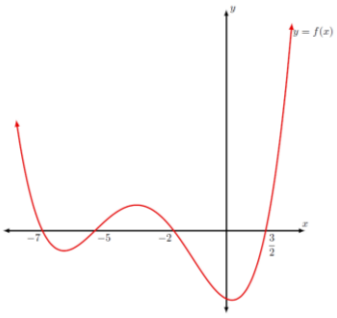
2. Sketch the graph of $f(x) = x(3x + 19)(3 – 2x)(2x + 9)$, and state the coordinates of the intersection with the x-axis. **(3)**

3. Sketch the graph of $f(x) = (3x – 2)^4$, and state the coordinates of the intersections with the x-axis. **(3)**

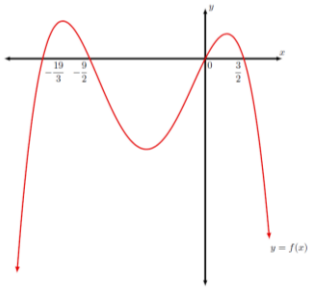
4. Sketch the graph of $16x^4 – 96x^3 + 120x^2 + 200x – 275$ **(4)**

Solutions

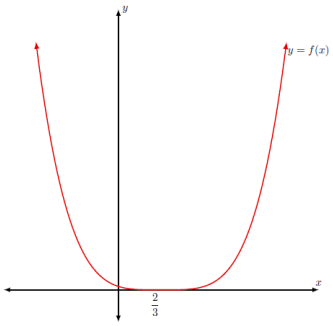
1.

$f(x) = (x + 7)(x + 5)(x + 2)(2x – 3)$ $x = -7$, $x = -5$, $x = -$, $x = \frac{3}{2}$	**M1**
Shape **M1** Roots marked **M1** 	

2.

$f(x) = x(3x + 19)(3 – 2x)(2x + 9)$ $x = 0$, $x = \frac{19}{3}$, $x = \frac{3}{2}$, $x = -\frac{9}{2}$	**M1**
Shape **M1** Roots marked **M1** 	

3.

$f(x) = (3x – 2)^4$ $x = -\frac{2}{3}$	**M1**
Shape **M1** Roots marked **M1** 	

4.

$16x^4 – 96x^3 + 120x^2 + 200x – 275$ $= (3x + 5)^3 (3 – x)$	**M1**
$x = -\frac{5}{3}$, $x = 3$	**M1**
Shape **M1** Roots marked **M1**