

21 Test 3 TH MU

(c) $b^2 - 4ac = -576$

$\sqrt{-576} = 24i$

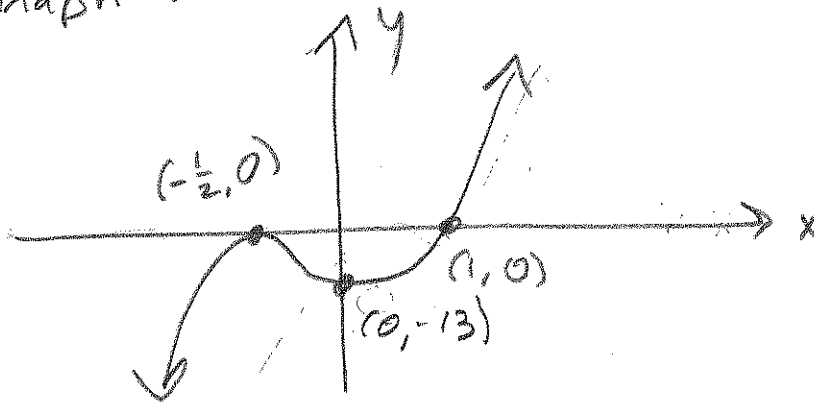
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{16 \pm 24i}{2(4)} = \frac{8(2 \pm 3i)}{8} = \boxed{2 \pm 3i}$$

$x = 2 \pm 3i$

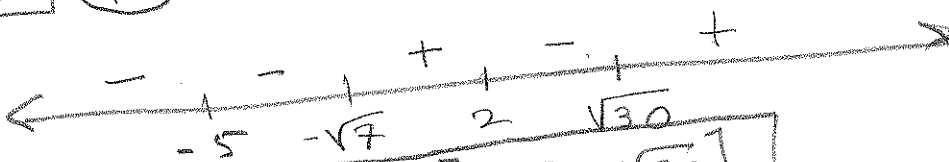
$$f(x) = 4(x-1)\left(x + \frac{1}{2}\right)^2(x - (2+3i))(x - (2-3i))$$

9 Graph:



Bonus:

B1 (5pts) $(x-2)(x+5)^2(x-\sqrt{30})(x+\sqrt{7}) \leq 0$



$x \in (-\infty, -\sqrt{7}] \cup [2, \sqrt{30}]$

B2 (5pts) $\frac{(x-\sqrt{30})(x+\sqrt{7})}{(x-2)(x+5)^2} \leq 0$

By previous work and $x \neq 2$ and $x \neq -5$, we have

$x \in (-\infty, -5) \cup (-5, -\sqrt{7}] \cup (2, \sqrt{30}]$