

Simplify.

$i^{62}$

$-1$

$i^{123}$

$-i$

$i^{88}$

$1$

$-6i * 4i$

$24$

$8i * 3i$

$-24$

$\sqrt{-90}$

$3i\sqrt{10}$

$\sqrt{-81}$

$9i$

$\sqrt{68}$

$2\sqrt{17}$

$(9 - 2i) + (4i - 3) \quad 6 + 2i$

$(9 - 2i) - (4i - 3) \quad 12 - 6i$

$(9 - 2i)(4i - 3) \quad -19 + 42i$

Find the vertex, y-int, and roots,  
then sketch the graph

$y = 3x^2 + 6x + 7$

$v: (-1, 4) \quad y\text{-int}: (0, 7)$

$x = \frac{-6 \pm 4i\sqrt{3}}{6}$

$y = -\frac{1}{2}(x + 3)^2 + 12$

$(-3, 12) \quad y\text{-int}: (0, 7.5)$

$x = 1.899$

$x = -7.899$

## Find the vertex, y-intercept, x-intercepts or roots, and sketch the graph

\*If the graph crosses the x-axis, you can use your calculator to find the x-intercepts. The only exception to this rule is if the directions clearly state to leave your answers in simplest radical form. Then you must use the QF.)\*

$$y = 3(x - 2)^2 - 4$$

V: (2, -4)    x=0.845  
 y-int: (0, 8)    x=3.155

$$y = x^2 - 4x + 11$$

V: (2, 7)    Roots:  $x = \frac{4 \pm 2i\sqrt{7}}{2}$   
 y-int: (0, 11)

$$y = -x^2 - 6x - 10$$

V: (-3, -1)    Roots:  $\frac{6 \pm 2i}{-2}$   
 y-int: (0, -10)

$$y = -4x^2 - 8x + 11$$

V: (-1, 15)    x=-2.936  
 y-int: (0, 11)    x=0.936

$$y = (2x + 5)(2x - 1)$$

V: (-1, -9)  
 y-int: (0, -5)  
 x = -2.5    x = 0.5

$$y = 2x^2 + 8x + 17$$

V: (-2, 9)  
 y-int: (0, 17)  
 Roots:  $\frac{-8 \pm 6i\sqrt{2}}{4}$