3. Graph:

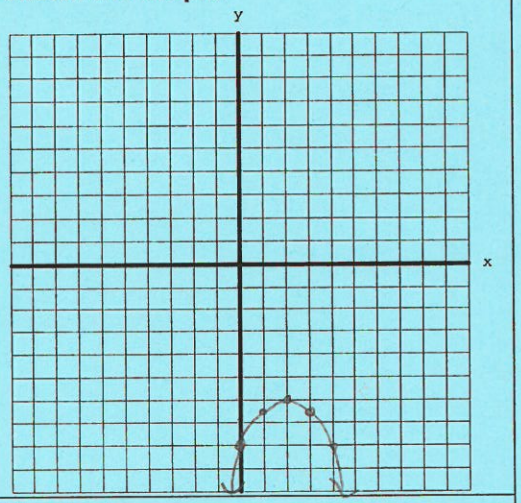
$y = -2x^2 + 8x - 32$

$\frac{-8}{2(-2)} \quad \frac{-8}{-4} : 2$

$(2, -24)$

Count by 4

Sketch the Graph:



Solve:

$\frac{-8 \pm \sqrt{8^2 - 4(-2)(-32)}}{2(-2)}$

$\sqrt{64 - 256}$

$\sqrt{-192}$

$\sqrt{-1 \cdot 64 \cdot 3}$

$8i\sqrt{3}$

$\frac{-8 \pm 8i\sqrt{3}}{-4}$ or $2 \pm 2i\sqrt{3}$

Key Features:

Vertex: $(2, -24)$

X-intercept(s): $2 \pm 2i\sqrt{3}$

Y-intercept: $(0, -32)$

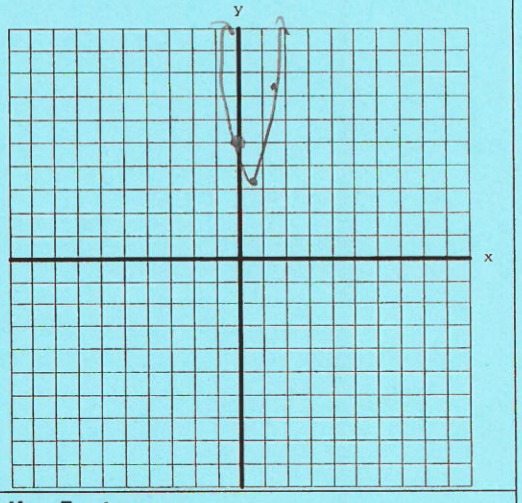
4. Graph:

$y = 5x^2 - 6x + 5$

$\frac{6}{2(5)} = \frac{6}{10} = .6$

$(.6, 3.2)$

Sketch the Graph:



Solve:

$\frac{6 \pm \sqrt{(-6)^2 - 4(5)(5)}}{2(5)}$

$\sqrt{36 - 100}$

$\sqrt{-64}$

$8i$

$\frac{6 \pm 8i}{10}$ or $\frac{3 \pm 4i}{5}$

Key Features:

Vertex: $(0.6, 3.2)$

X-intercept(s): $\frac{3 \pm 4i}{5}$

Y-intercept: $(0, 5)$

Unit 1 Graphing and Solving (Imaginary) N.CN.7

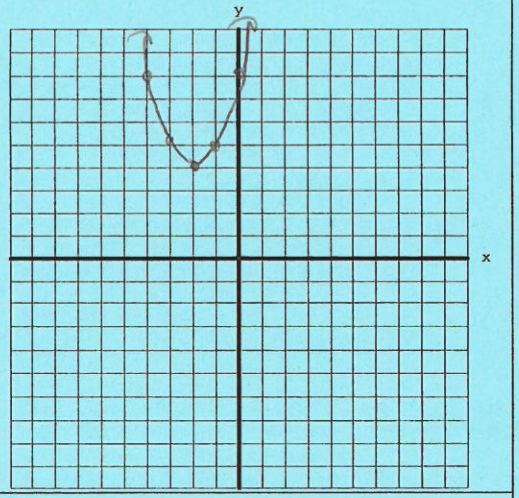
1. Graph:

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

$\frac{-4}{2(1)}$ $\frac{-4}{2} = -2$

$(-2, 4)$

Sketch the Graph:



Solve:

$\frac{-4 \pm \sqrt{4^2 - 4(1)(8)}}{2(1)}$

$\sqrt{16 - 32}$

$\sqrt{-16}$

$4i$

$\frac{-4 \pm 4i}{2}$ or

$-2 \pm 2i$

Key Features:

Vertex: $(-2, 4)$

X-intercept(s): $-2 \pm 2i$

Y-intercept: $(0, 8)$

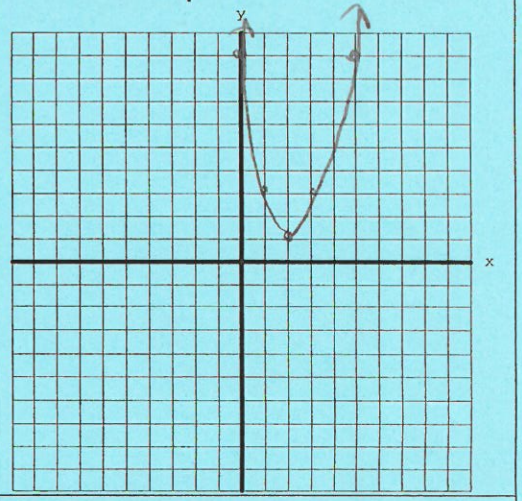
2. Graph:

$y = 2x^2 - 8x + 9$

$\frac{8}{2(2)} = \frac{8}{4} = 2$

$(2, 1)$

Sketch the Graph:



Solve:

$\frac{8 \pm \sqrt{(-8)^2 - 4(2)(9)}}{2(2)}$

$\sqrt{64 - 72}$

$\sqrt{-8}$

$\sqrt{-1}\,4\,2$

$2i\sqrt{2}$

$\frac{8 \pm 2i\sqrt{2}}{4}$ or

$\frac{4 \pm i\sqrt{2}}{2}$

Key Features:

Vertex: $(2, 1)$

X-intercept(s): $\frac{4 \pm i\sqrt{2}}{2}$

Y-intercept: $(0, 9)$