

Show all your work to receive full credit.

Simplify each expression performing operations as shown.

#1 $\sqrt[9]{(-3)^9}$

#2 $\sqrt[4]{32x^6}$

#3 $\sqrt{27x^8}$

#4 $\frac{\sqrt{72x^4}}{\sqrt{4x}}$

#5 $\sqrt{98} + \sqrt{18} - 3\sqrt{32}$

#6 $\sqrt{12} - 2\sqrt{27} + \sqrt{48}$

$$\#7 \quad \sqrt{-64} \cdot \sqrt{-4}$$

$$\#8 \quad \frac{\sqrt{-64x^3}}{\sqrt{-4x}}$$

Perform the indicated operations and simplify. Write answers in $a + bi$ format.

$$\#9 \quad (4 - 2i)(4 + 2i)$$

$$\#10 \quad \frac{1 + 2i}{3 + 4i}$$

Solve.

$$\#11 \quad \sqrt{3x - 2} - 3 = -8$$

#12 $\sqrt{x-1} + 3 = x$

#13 $x^2 - 7x + 13 = 0$

#14 $(x + 2)^2 + 4 = 0$

#15 $x^4 - 13x^2 + 36 = 0$

#16 $x^2 - 12x + 27 = 0$

Find and label the vertex, axis of symmetry and the maximum or minimum value for each function.
Then sketch a graph of the function.

#17 $f(x) = -(x - 1)^2 + 3$

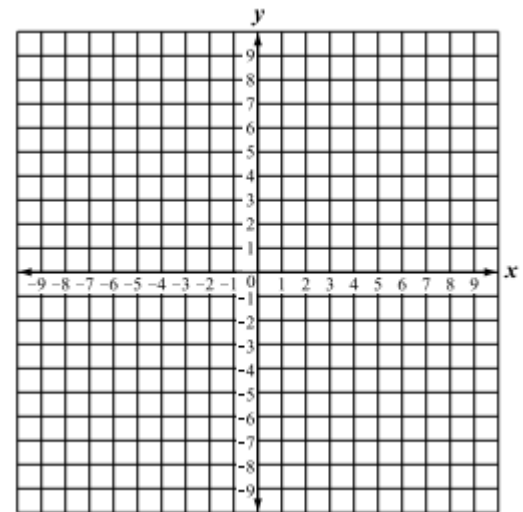
Vertex:

Is the vertex a Maximum or minimum?

Axis of Symmetry:

y-intercept:

x-intercept(s):



#18 $f(x) = x^2 + 2x - 8$

Vertex:

Is the vertex a Maximum or minimum?

Axis of Symmetry:

y-intercept:

x-intercept(s):

