

Topic 21: Graph quadratic functions

Sketch the graph of each function and label the vertex and intercepts. Find the maximum or minimum.

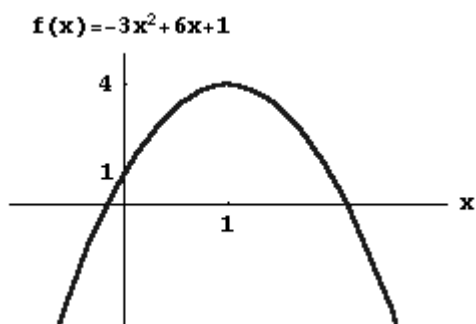
1. $f(x) = -3x^2 + 6x + 1$

2. $f(x) = 2x^2 + 8x + 5$

3. $f(x) = x^2 + 6x$

Answers

1.



Vertex: (1,4)

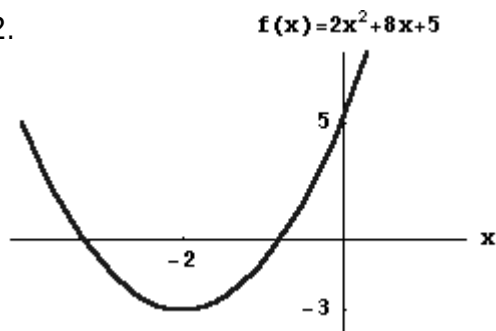
x-intercepts: (2.2, 0) and (-0.2, 0)

$$\frac{-6 \pm \sqrt{48}}{-6} \approx 2.2, -0.2$$

y-intercept: (0,1)

Maximum value of the function is 4.

2.



Vertex: (-2,-3)

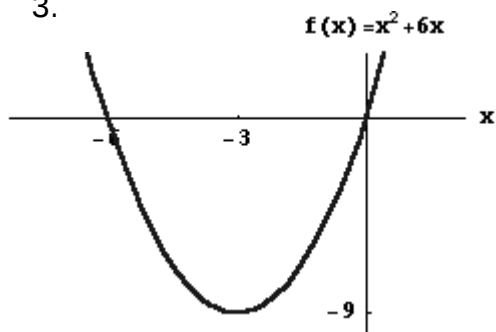
x-intercepts: (-3.2, 0) and (-0.8, 0)

$$\frac{-8 \pm \sqrt{24}}{4} \approx -3.2, -0.8$$

y-intercept: (0,5)

Minimum value of the function is -3.

3.



Vertex: (-3,-9)

x-intercepts: (-6, 0) and (0, 0)

y-intercept: (0,0)

Minimum value of the function is -9.