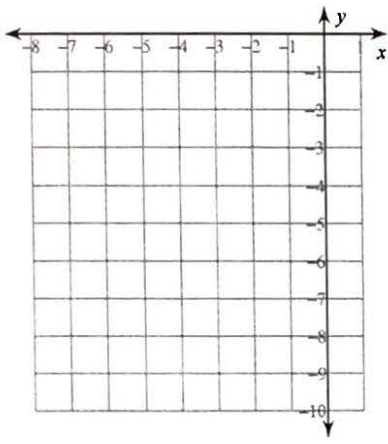
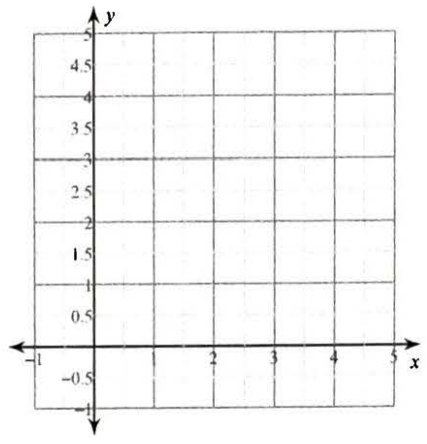


For each function, find the vertex, any x-intercepts, and y-intercept. Use these results to sketch the graph of each function.

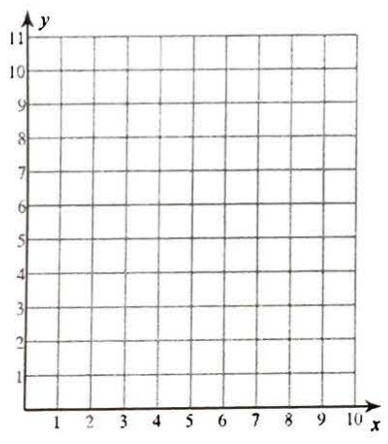
1) $f(x) = -2x^2 - 16x - 33$



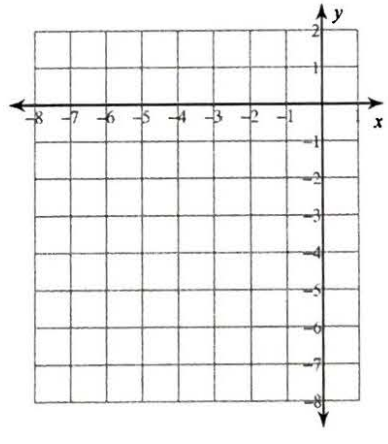
2) $f(x) = -x^2 + 4x$



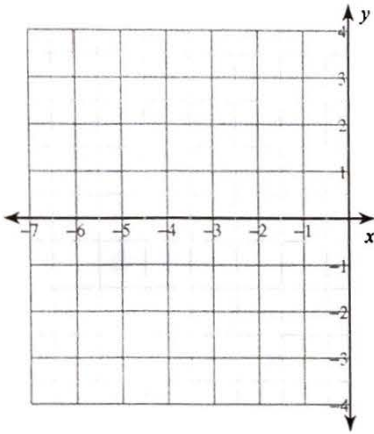
3) $f(x) = 2x^2 - 8x + 10$



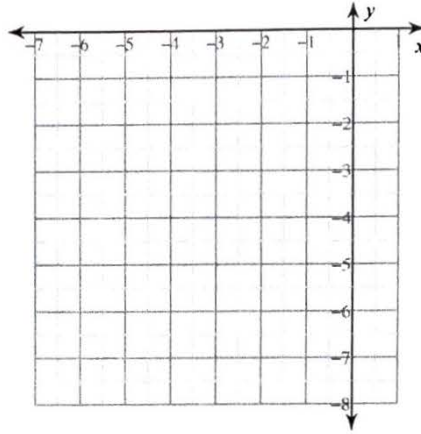
4) $f(x) = -2x^2 - 16x - 31$



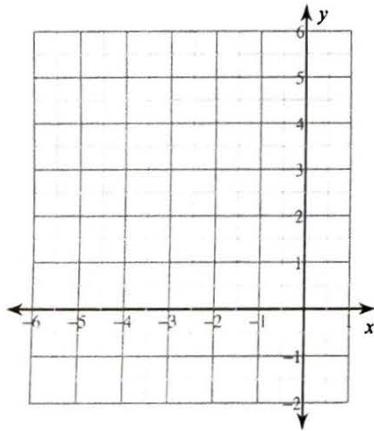
$$13) f(x) = (x + 4)^2 - 2$$



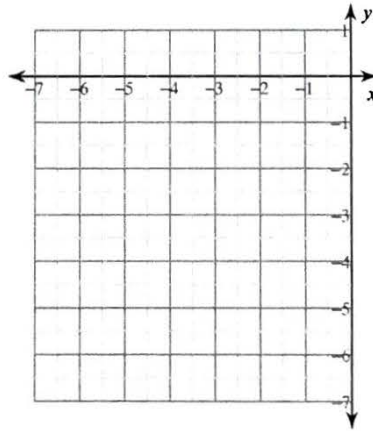
$$14) f(x) = -(x + 3)^2 - 3$$



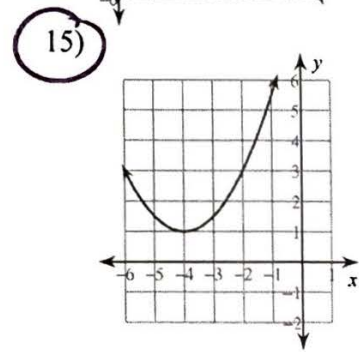
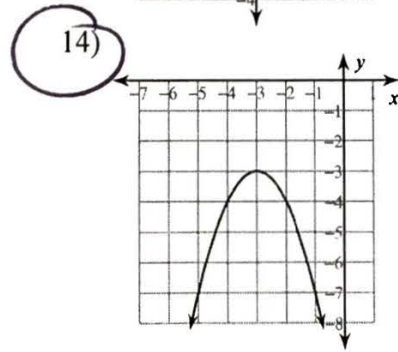
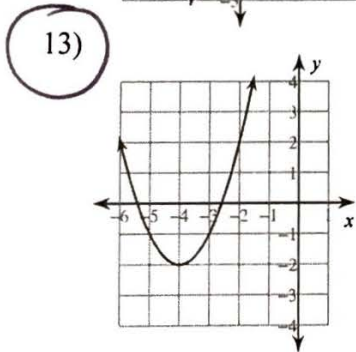
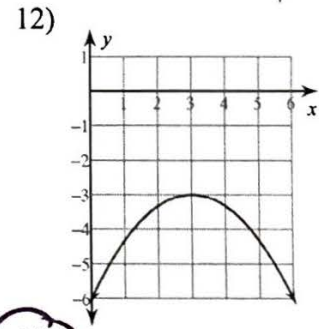
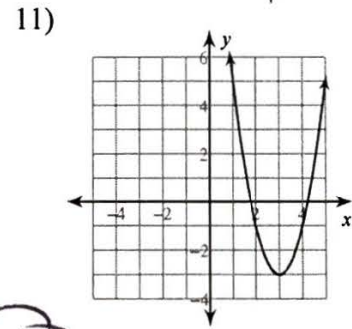
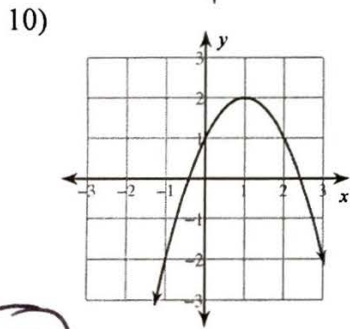
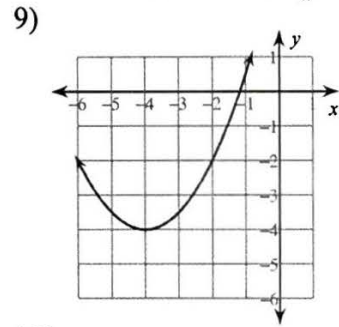
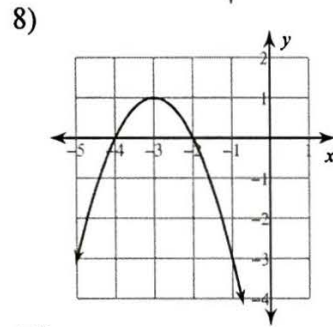
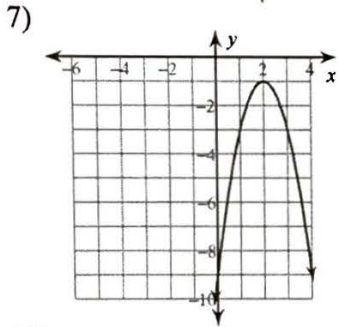
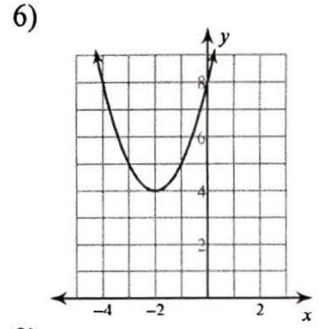
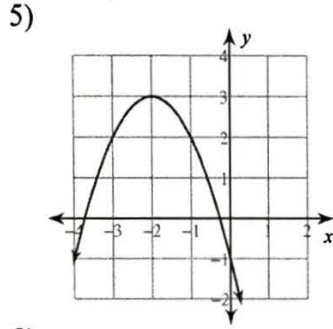
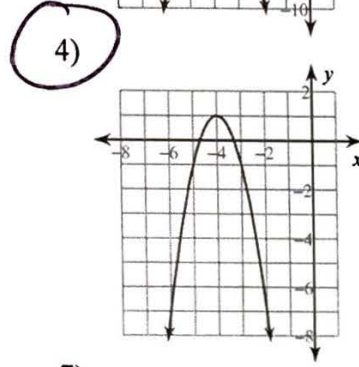
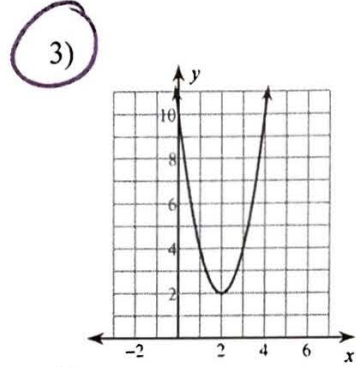
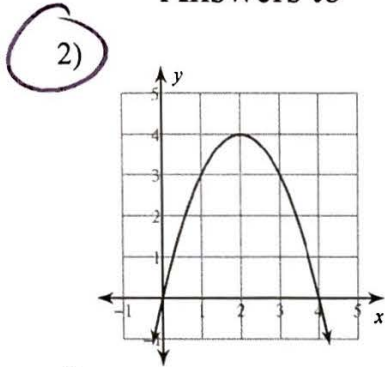
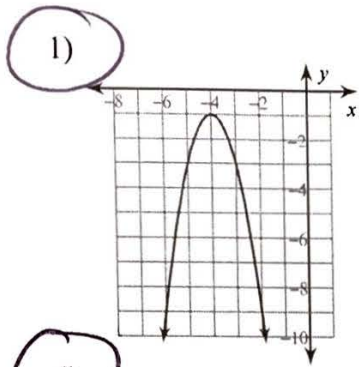
$$15) f(x) = \frac{1}{2}(x + 4)^2 + 1$$



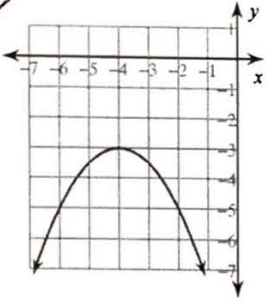
$$16) f(x) = -\frac{1}{2}(x + 4)^2 - 3$$



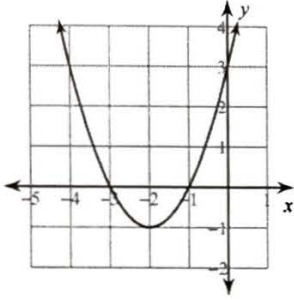
Answers to



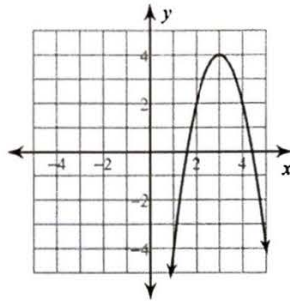
16)



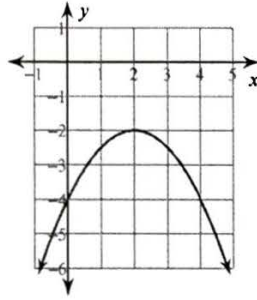
19)



17)



20)



18)

