

For each problem find the vertex 3 different ways and determine whether the problem will have a maximum value or a minimum value. State where and what the max or min is.

a) $y = x^2 - 2x - 8$

b) $y = x^2 - 7x + 12$

c) $y = -x^2 + x + 2$

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

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