UNIT 3: QUADRATICS (CH5)

1. Which form of the quadratic equation shows the minimum or the maximum value of the function without changing the form of the equation

a) Standard form b) factored form c) vertex form

2. NC Which of the following equations shows the minimum or the maximum of h(x)?

$h(x) = 2(x+3)(x+1)$ $h(x) = 2(x+2)^2 - 2$ $h(x) = 2x^2 + 8x + 6$

Does h(x) have a maximum or a minimum?

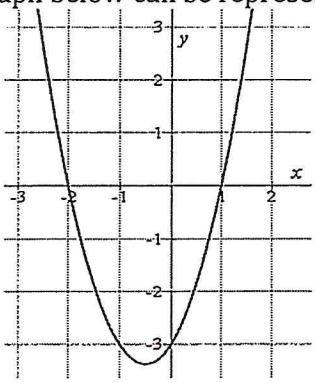
3. The John Deere Company has found that the revenue from sales of heavy-duty tractors is a function of the unit price p that it charges. The revenue R is

$$R = -\frac{1}{2}p^2 + 1900p$$

What unit price p should be charged to maximize revenue? What is the maximum revenue?

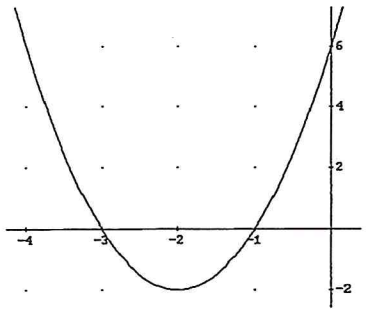
4. The sum of the areas of two square plots of land is 45 square feet. The length of the side of one of the squares is 3 feet more than the length of the side of the other. What is the length of the sides of each square area?

5. NC The graph below can be represented by which of the following equations:



a) $y = (x-2)(x+1)$
b) b) $y = (x-1)(x+2)$
c) c) $y = (x+1)(x+2)$
d) d) $y = (x-1)(x-2)$

6. NC Select **ALL** of the functions that can represent the following graph



a) $2x^2 + 4x + 3$
b) $2(x+3)(x+1)$
c) $2(x+2)^2 - 2$
d) $2(x-3)(x-1)$
e) $2x^2 + 8x + 6$
f) $2(x-2)^2 - 2$

7. Simplify each expression. Write your answer in $a + bi$ format.

a. $-3 + 6i - (-5 - 3i) - 8i$

b. $(-2 - i)(4 + i)$

c. $-6(4 - 6i)^2$

d. $(6 - 2i) - (11 + 4i)$