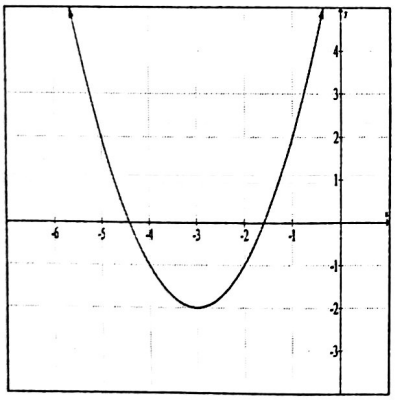
1) ***Match each graph with its equation***

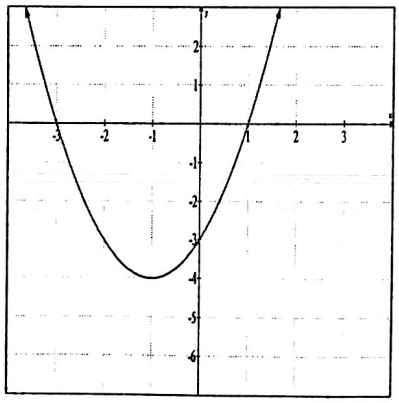
- Think about what form the equation is in.
- If you have an equation in vertex form, look for a graph with the same vertex!
- If you have an equation in factored form, look for a graph with the same x-intercepts!
- If you have an equation in standard form, look for a graph with the same y-intercept.

Equation	Matching Letter	Equation	Matching Letter
y-int (0,-5) $y = x^2 - 2x - 5$	F	vertex (0,0) $y = x^2$	C
zeros: (-1,0), (-3,0) $y = (x+1)(x+3)$	E	zeros (1,0), (-3,0) $y = (x-1)(x+3)$	B
vertex (2,2) $y = -2(x-2)^2 + 2$	D	vertex (-3,-2) $y = (x+3)^2 - 2$	A

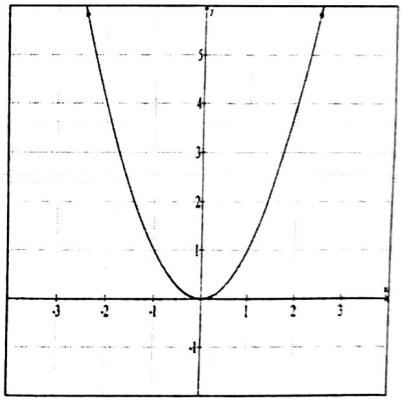
a.



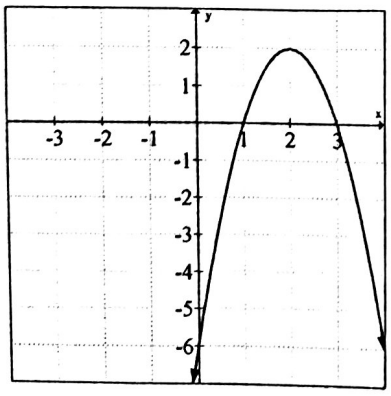
b.



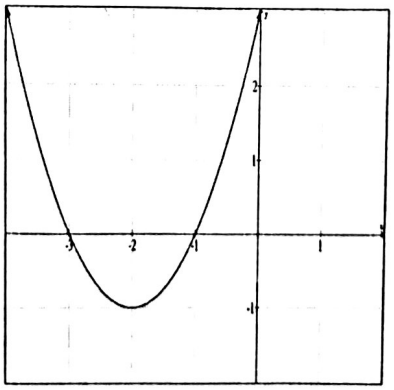
c.



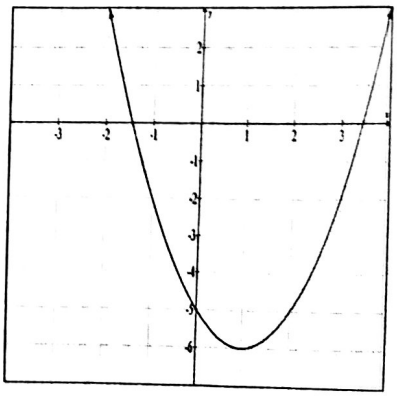
d.



e.



f.



2) Expand the following 2 quadratic relations to convert them into standard form. A graph has been provided so that you can check your answer.

a) Vertex Form:

$y = -3(x+2)^2 + 3$

$= -3(x+2)(x+2) + 3$

$= -3(x^2 + 2x + 2x + 4) + 3$

$= -3(x^2 + 4x + 4) + 3$

$= -3x^2 - 12x - 12 + 3$

$= -3x^2 - 12x - 9$

b) Factored Form:

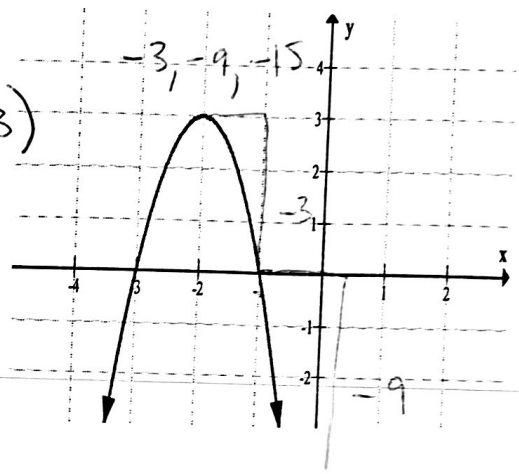
$y = -3(x+1)(x+3)$

$= -3(x^2 + 3x + 1x + 3)$

$= -3(x^2 + 4x + 3)$

$= -3x^2 - 12x - 9$

Sketch:



3) Expand and simplify the following expression: $2(x+3)(x+4) - (x+1)(x-2)$

$= 2(x^2 + 4x + 3x + 12) - (x^2 - 2x + x - 2)$

$= 2(x^2 + 7x + 12) - (x^2 - x - 2)$

$= 2x^2 + 14x + 24 - x^2 + x + 2$

$= x^2 + 15x + 26$