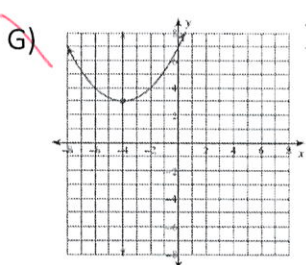


Vertex Form/Completing the Square

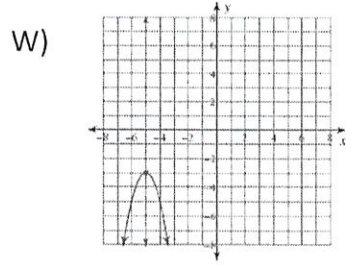
Name Key
Date _____ Hour _____

Match the graph to the functions.

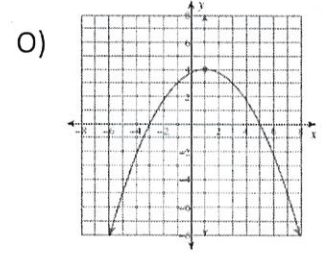
- 1) $f(x) = -3(x-2)^2 - 4$ **B** 2) $f(x) = -\frac{1}{4}(x-1)^2 + 4$ **O** 3) $f(x) = \frac{1}{4}(x+4)^2 + 3$ **G**
 4) $f(x) = \frac{1}{4}(x+5)^2 + 2$ **N** 5) $f(x) = -2(x+5)^2 - 3$ **W** 6) $f(x) = (x+2)^2 - 1$ **S**



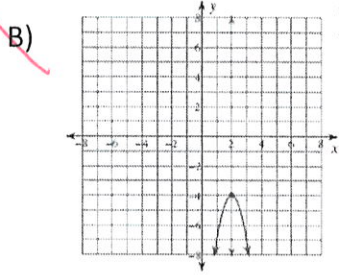
(-4, 3)



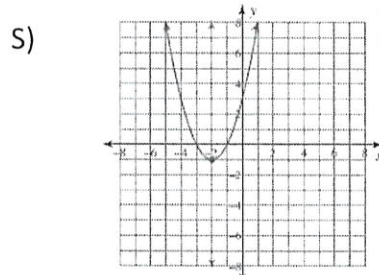
(-5, -3)



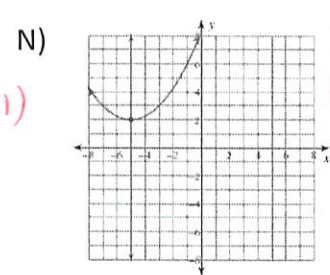
(1, 4)



(2, -4)



(-2, -1)



(-5, 2)

Rewrite the equation in vertex by completing the square, show all steps!!!!

L 7) $f(x) = x^2 + 6x - 59$
 $= x^2 + 6x + \boxed{9} - 59 - \boxed{9}$
 $= (x + 3)^2 - \boxed{68}$

P 8) $f(x) = x^2 - 4x + 6$
 $= (x^2 - 4x + \underline{4}) + 6 - \underline{4}$
 $= (x - 2)^2 + \underline{2}$

A 9) $f(x) = x^2 + 7x - 10$
 $= (x^2 + 7x + \frac{49}{4}) - 10 - \frac{49}{4}$
 $= (x + \frac{7}{2})^2 - \frac{89}{4}$

I 10) $f(x) = 5x^2 + 20x - 60$
 $= 5(x^2 + 4x + \underline{4}) - 60 - \underline{20}$
 $= 5(x + 2)^2 - \underline{80}$

V 11) $f(x) = 2x^2 - 8x + 6$
 $= \underline{2}(x^2 - 4x + \underline{4}) + 6 - \underline{8}$
 $= \underline{2}(x - 2)^2 - \underline{2}$

D 12) $f(x) = -x^2 + 2x - 3$
 $= -1(x^2 - 2x + \underline{1}) - 3 + \underline{1}$
 $= -(x - 1)^2 - \underline{2}$

C 13) $f(x) = x^2 - 9x + 23$
 $(x^2 - 9x + \frac{81}{4}) + 23 - \frac{81}{4}$
 $y = (x - \frac{9}{2})^2 + \frac{11}{4}$

H 14) $f(x) = 8x^2 + 16x - 42$
 $8(x^2 + 2x + \underline{1}) - 42 - \underline{8}$
 $y = 8(x + 1)^2 - 50$

R 15) $f(x) = 9x^2 + 18x + 79$
 $9(x^2 + 2x + \underline{1}) + 79 - \underline{9}$
 $y = 9(x + 1)^2 + 70$

I 16) $f(x) = -\frac{1}{2}x^2 - 5x + \frac{5}{2}$
 $-\frac{1}{2}(x^2 + 10x + \underline{25}) + \frac{5}{2} + \frac{25}{2}$
 $-\frac{1}{2}(x + 5)^2 + 15$