Name _____ Period _____ Date _____

Function Junction Investigation 3 and 4 Additional Practice

1. Solve for x. Give both exact solutions and decimal approximations to the tenths place where appropriate.

a. $(x+2)^2 - 5 = 0$

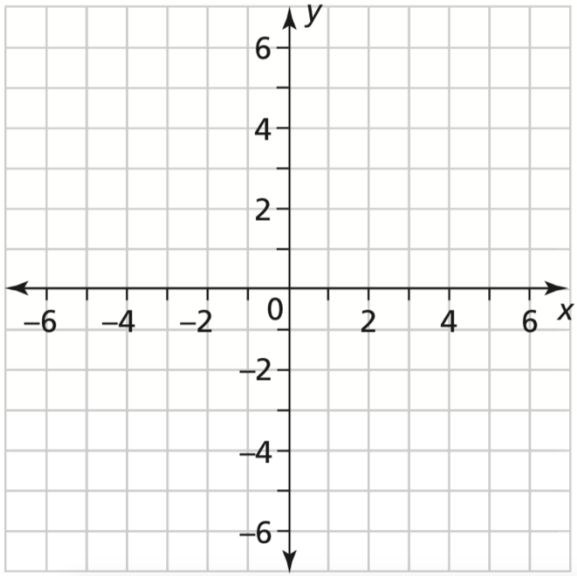
b. $(x-3)^2 - 2 = 0$

c. $-(x-1)^2 + 4 = 0$

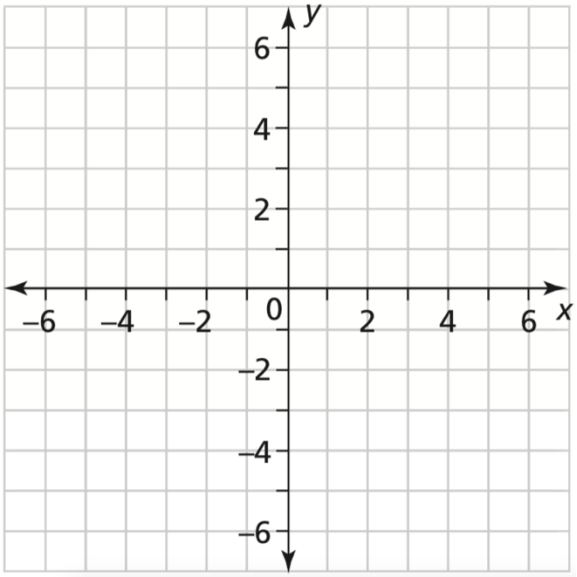
d. $2(x+2)^2 - 5 = 0$

2. Each of the following functions corresponds to an equation above. Use the information about your solutions from above to identify the coordinates of the vertex, x-intercept(s) and y-intercept to plot a graph.

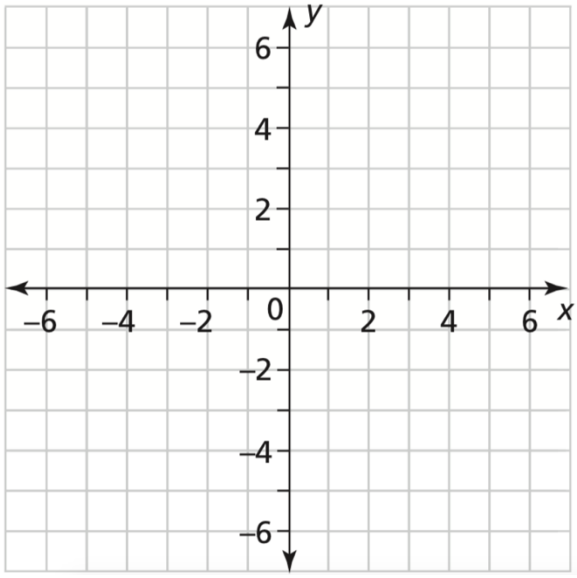
a. $f(x) = (x+2)^2 - 5$



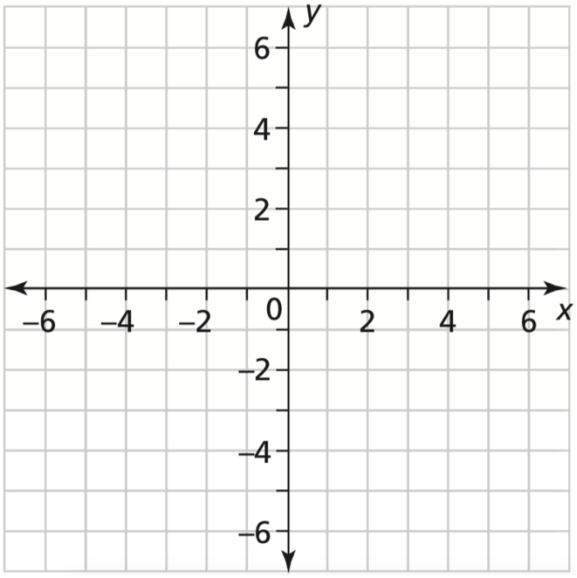
b. $f(x) = (x-3)^2 - 2$



c. $f(x) = -(x-1)^2 + 4$



d. $f(x) = 2(x+2)^2 - 5$



For numbers 3-12:

- Write the equation in vertex form
- Identify the coordinates of the maximum or minimum
- Identify the x-intercept(s) and y-intercept

3. $f(x) = x^2 + 6x + 9$

4. $f(x) = -x^2 + 2x - 1$

5. $f(x) = x^2 - 3x$

6. $f(x) = x^2 + 4x - 12$

7. $f(x) = -x^2 + 8x - 12$

8. $f(x) = x^2 - x + 2$

9. $f(x) = 2x^2 + 4x - 3$

10. $f(x) = 2x - x^2 - 2$

11. $f(x) = -4x^2 + 8x - 3$

12. $f(x) = 3x^2 - 12x - 1$

For numbers 13-16, rewrite the equations in standard form ($y = ax^2 + bx + c$).

13. $f(x) = (x-4)^2 - 1$

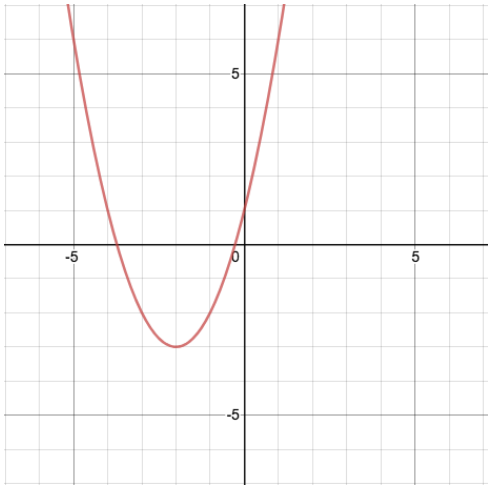
14. $f(x) = (x-1)^2 + 2$

15. $f(x) = 2(x-3)^2 + 5$

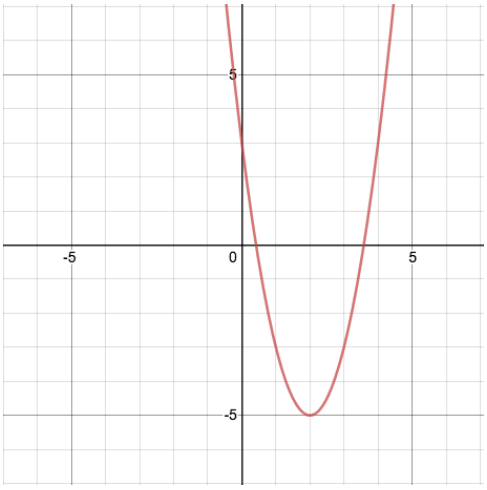
16. $f(x) = -(x+4)^2 + 10$

Describe the transformation of the graph from $y=x^2$ and write the new equation.

17.



18.



Write the new equations following the listed transformation(s), in standard form.

19. $f(x) = x^2 + 5x - 3$
Translate 3 units left and
2 units up.

20. $f(x) = -2x^2 - x + 1$
Translate 2 units right followed by a dilation
From the origin with scale factor = 1.5