Honors Math II
Graphing/ Quadratic Equations

Name_____
Period_____Date_____

Factor the following quadratics.

1. $x^2 - 9$

2. $x^2 + 9$

3. $x^2 - 5$

4. $x^2 + 5$

5. $x^2 + 20x + 64$

6. $x^2 - 16x - 36$

Solve for x by factoring.

7. $4x^2 + 8x = 0$

8. $-6x^2 + 6x = 0$

9. $2x^2 - 6x = 0$

10. $-2x^2 - 2x + 40 = 0$

11. $-2x^2 + 17x - 21 = 0$

12. $-3x^2 + 2x + 5 = 0$

Multiply the following binomials.

13. $-(2x + 5)(x - 7)$

14. $-2(3x - 4)(2x + 1)$

15. $\frac{1}{2}(x - 4)^2$

16. $3(x - 5)(x + 5)$

Solve for x by using the technique of taking the square root of both sides.

17. $6 = 2(x + 1)^2 - 14$

18. $0 = -3(x - 2)^2 + 15$

19. A quadratic equation has an axis of symmetry of $x = -4$. Name the x-intercepts if they are 4 units from the axis of symmetry.

20. A quadratic equation has an axis of symmetry of $x = -7$ and an x-intercept of (-2, 0). What is the other x-intercept?

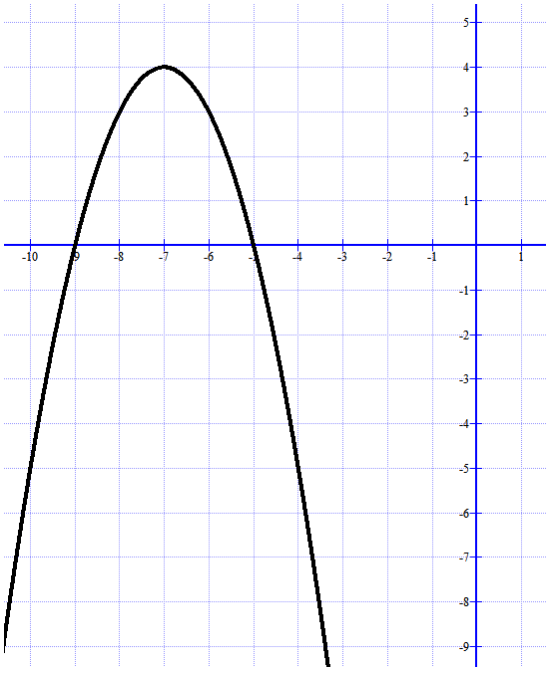
21. A quadratic equation has an axis of symmetry of $x = 5$ and the x-intercepts are 4 units from the axis of symmetry.
A) Name the 2 possible points for a vertex given that the graph follows the standard rate of change.
B) Name the 2 possible points for a vertex given that the graph has a vertical stretch by a factor of 2.

For questions 22-23, write the quadratic equation that represents the given data in:
A) Vertex Form
B) Intercept Form
C) Standard Form

22.

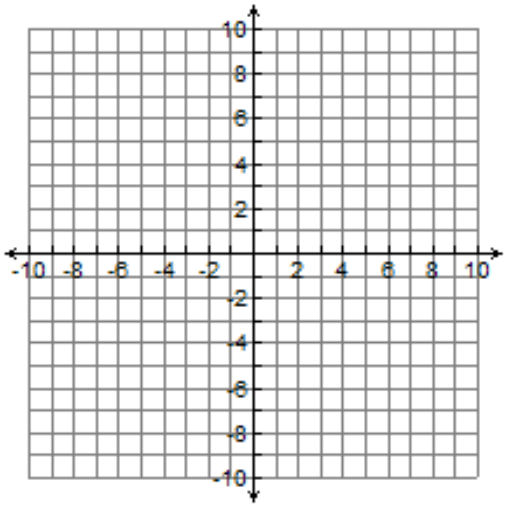
x	y
-4	10
-2	0
0	-6
2	-8
4	-6
6	0
8	10

23.

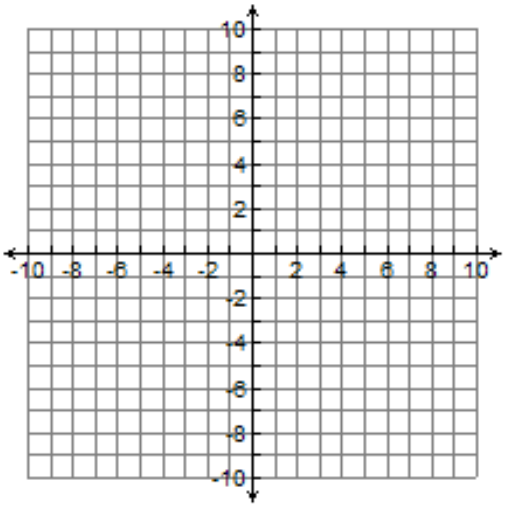


Questions 24-28: Graph the given quadratic equations and write the equation in Vertex form, Intercept form, and Standard form.

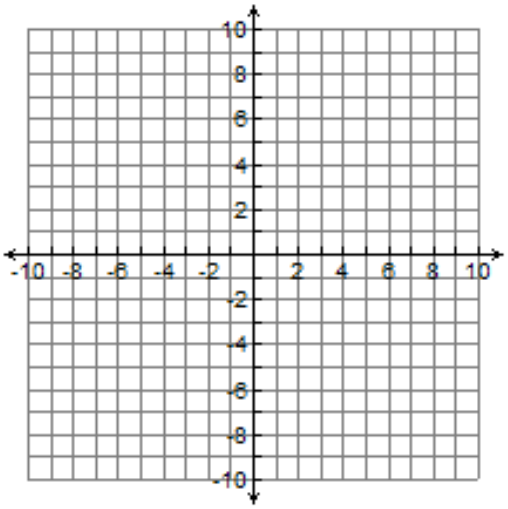
24. $f(x) = -x^2 - 6x - 9$



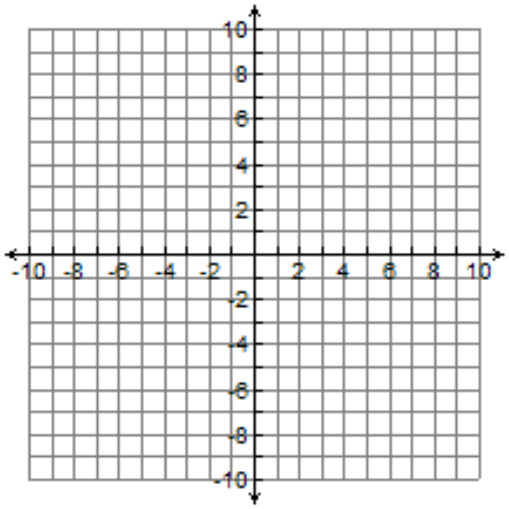
25. $f(x) = 2(x+1)^2 - 18$



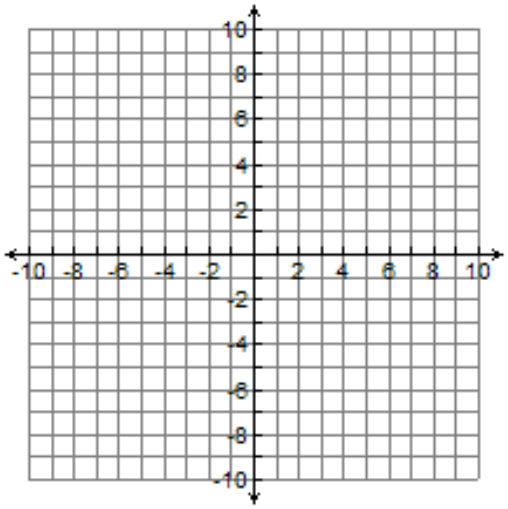
26. $f(x) = -(x-1)(x-7)$



27. $f(x) = 3(x-2)^2 - 108$



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



29. What are the possible number of zeros that a quadratic equation could have? Make a sketch of each scenario.

30. Explain why the axis of symmetry is useful when writing and graphing quadratic equations.