Honors Math II Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Graphing/ Quadratic Equations 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. $-\left(2x+5\right)\left(x-7\right)$ 14. $-2\left(3x-4\right)\left(2x+1\right)$

15. $\frac{1}{2}\left(x-4\right)^{2} $ 16. $3\left(x-5\right)\left(x+5\right)$

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

17. $6=2\left(x+1\right)^{2}- 14$ 18. $0=-3\left(x-2\right)^{2}+15$

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

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

22.



23.

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

![[image]]()24. $f\left(x\right)= -x^{2}-6x-9$

25. $f\left(x\right)=2\left(x+1\right)^{2}-18$

![[image]]()

26. $f\left(x\right)=-\left(x-1\right)(x-7)$

![[image]]()

![[image]]()27. $f\left(x\right)=3(x-2)^{2}-108 $

![[image]]()28. $f\left(x\right)=-x^{2}+2x+15$

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.