

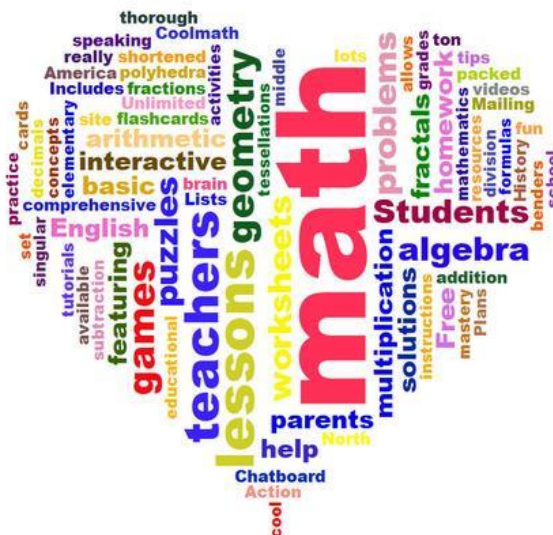


Geometry Teacher_____

This assignment is due, showing all work and in pencil on the very first day of school. The content in this packet will also be tested on your first Chapter Test.

- Use your Algebra 1 and Geometry Notes from previous years
- Ask an older brother, sister, or friend who may have already taken Algebra 2 to offer some assistance
- Work with a friend together to explain topics – not copy work
- Use Google or YouTube – they aren't the solution for EVERY lesson but they'll certainly help if you're stuck

- Do NOT complete the packet right away, wait until a week or two before school starts to see where you are at that point
- Do NOT copy any work from another student
- Do NOT leave it blank, mark something with a question mark or circle, or give up – every problem must be done in its entirety
- Do NOT Email me the weekend before the packet is due asking for an extension!



Find each of the pieces of missing information. Then graph the Quadratic Equation accordingly. If you're stuck, look up the Axis of Symmetry Formula.

1. $x^2 + 3x + 2 = 0$

a = b = c =

Axis of Symmetry: _____

Vertex: _____

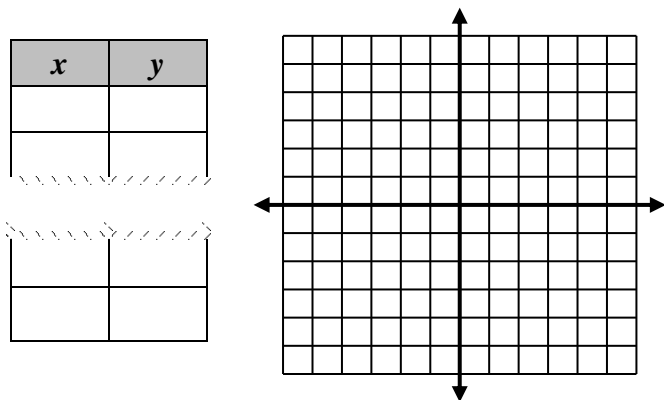
Parabola Open Up or Down? _____

Max or Min and Value _____

y-Intercept _____

Real Roots/Zeros _____

Domain: _____ Range: _____



2. $y = x^2 - 4x + 6$

a = b = c =

Axis of Symmetry: _____

Vertex: _____

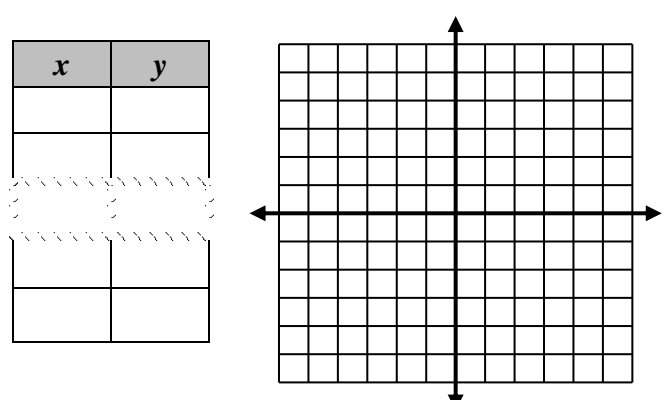
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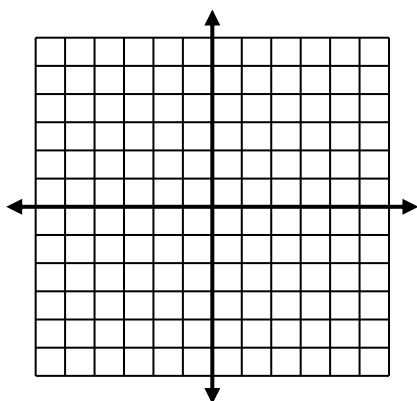
Real Roots/Zeros _____

Domain: _____ Range: _____



Without using a graphing calculator, graph $f(x)$ and $g(x)$ based on rules of transformations. Be sure to list the transformations IN ORDER as well as the Domain and Range.

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

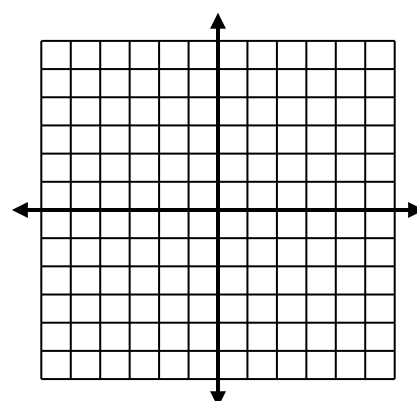


Trans: _____

D: _____

R: _____

4. $f(x) = x^2$ $g(x) = 2(x + 1)^2 - 5$



Trans: _____

D: _____

R: _____

Factor Completely. Please note, the directions DO NOT say solve. Credit will not be granted for any student who attempted to solve anything. Please CIRCLE your final answer.

5. $-2x^3 + 16x$

6. $y(y-6) + 9(y-6)$

7. $-15x^2y^3 + 9xy^4$

8. $36f^2 - 16$

9. $25x^4 - 64y^4$

10. $(x+3)^2 - 4$

11. $n^2 - 7n + 6$

12. $2m^2 + m - 3$

13. $18y^2 - 21y - 30$

14. $2(a+b)^2 + 5(a+b) - 3$

15. $x^3 + 4x^2 + x + 4$

16. $-9x^3 - 3x^2 + 3x + 1$

Solve by COMPLETING THE SQUARE. You may not use any other method. If you forget how, use Google or YouTube! Please Circle your final answer.

17. $x^2 - 8x + 7 = 0$

18. $2p^2 + 12p = -10$

19. $-3x^2 - 3x + 9 = 0$

Solve by using the Quadratic Formula. You may not use any other method. Please CIRCLE your final answer.

20. $x^2 + 7 = -8x$

21. $3x^2 - 8x = 3$

22. $-x^2 = -49$

23. $-8x^2 = -14x - 3$

Story Problems. Define your variables, write a quadratic equation and then use one of the solving techniques used in problems 1-23 to solve.

24. If Mandy adds five times her age to the square of her age, the result is 36.
What is Mandy's age?

24. _____

25. If four times a number is added to the square of a number, the result is 5.
Find the number(s).

25. _____

26. You are designing a garden for school grounds. You want the garden to be made up of a rectangular flower bed surrounded by a border of uniform width to be covered with stones. You have decided that the flower bed will be 22 feet by 15 feet, and your budget will allow for enough stone to cover 120 square feet. What should be the width of the border?

26. _____

27. An internet service provider sells high-speed internet service for \$30 per month to 1500 customers. For each \$1 increase in price, the number of customers will decrease by 25. How much should the company charge in order to maximize monthly revenue?
What is the maximum monthly revenue?

27. _____

27. _____

Answers

- | | | | |
|---|---|--|---|
| 1. AoS: $x = -\frac{3}{2}$
y-int: (0, 2) | Vertex: $(-\frac{3}{2}, -\frac{1}{4})$
Roots/Zeros: $x = -2, -1$ | Opens Up
Domain: $(-\infty, \infty)$ | Min @ $-\frac{1}{4}$
Range: $[-\frac{1}{4}, \infty)$ |
| 2. AoS: $x = 2$
y-int: (0, 6) | Vertex: (2, 2)
Roots/Zeros: None | Opens Up
Domain: $(-\infty, \infty)$ | Min @ 2
Range: $[2, \infty)$ |
| 3. Trans: Reflect over x-axis, Right 3, Up 2 | Domain: $(-\infty, \infty)$ | Range: $(-\infty, 2]$ | |
| 4. Trans: Vertical Stretch by 2, Left 1, Down 5 | Domain: $(-\infty, \infty)$ | Range: $[-5, \infty)$ | |
| 5. $-2x(x^2 - 8)$ | 6. $(y - 6)(y + 9)$ | 7. $-3xy^3(5x - 3y)$ | 8. $4(3f + 2)(3f - 2)$ |
| 9. $(5x^2 - 8y^2)(5x^2 + 8y^2)$ | 10. $(x + 1)(x + 5)$ | 11. $(n - 6)(n - 1)$ | 12. $(2m + 3)(m - 1)$ |
| 13. $3(6y + 5)(y - 2)$ | 14. $(2a + 2b - 1)(a + b + 3)$ | 15. $(x + 4)(x^2 + 1)$ | 16. $-(3x + 1)(3x^2 - 1)$ |
| 17. $x = 7, 1$ | 18. $p = -1, -5$ | 19. $x = -\frac{1}{2} \pm \frac{\sqrt{13}}{2}$ | 20. $x = -1 -7$ |
| 21. $x = 3, -\frac{1}{3}$ | 22. $x = 7, -7$ | 23. $x = \frac{7 \pm \sqrt{73}}{8}$ | 24. 4 years |
| 25. 1 | 26. 1.5 feet | 27. Charge: \$45, Revenue: \$50,625 | |

Answers

- | | | | |
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| 1. AoS: $x = -\frac{3}{2}$
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