

NO CALCULATOR

Be sure to show all your work to receive credit.

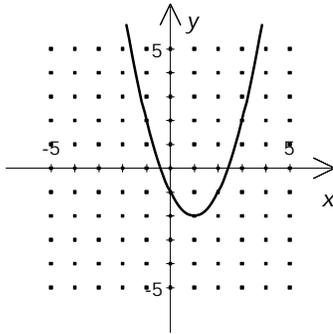
1. The graph of the function $f(x) = 2(x-2)^2 + 4$ has the vertex located at:

- [A] (4, 2) [B] (-4, 2) [C] (2, 4) [D] (-2, 4) [E] (-2, -4)

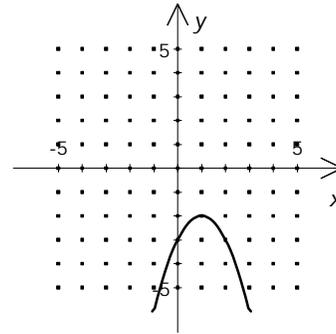
[1] _____

2. Which of the following is the graph of the equation $y = -(x-1)^2 - 2$?

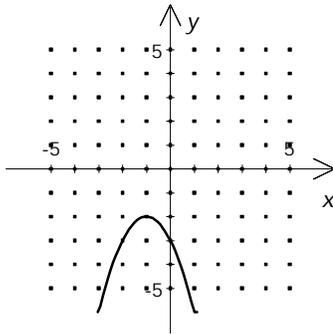
[A]



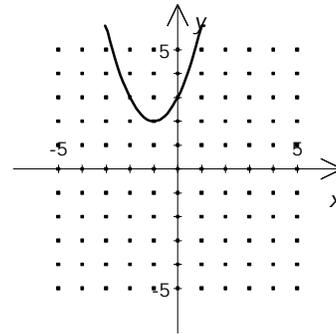
[B]



[C]



[D]



[2] _____

3. Identify the minimum or maximum point of the parabola $y = x^2 + 2x - 3$.

- [A] (-1, 0) [B] (-1, -4) [C] (1, 0) [D] (1, -4)

[3] _____

4. Rewrite the equation of a parabola in vertex form. $y = x^2 + 2x - 5$

- [A] $y = (x+1)^2 + 6$ [B] $y = (x+2)^2 + 5$ [C] $y = (x+1)^2 - 6$ [D] $y = (x+2)^2 - 5$

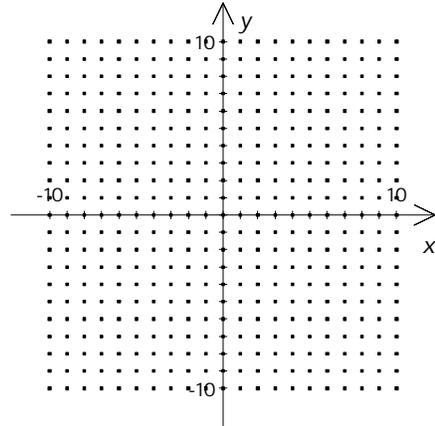
[4] _____

5. Rewrite the equation of a parabola in vertex form. $y = x^2 + 4x + 1$

- [A] $y = (x+2)^2 - 3$ [B] $y = (x+4)^2 - 1$ [C] $y = (x+2)^2 + 3$ [D] $y = (x+4)^2 + 1$

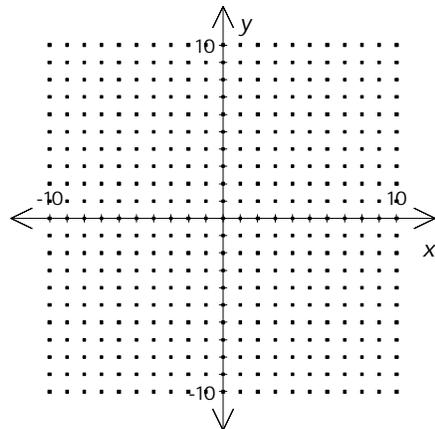
[5] _____

6. Graph: $y = (x+4)^2 + 1$



[6] _____

7. Graph $f(x) = x^2 - 8x + 15$ and find the vertex.



[7] _____

8. Solve: $x^2 = -3x + 1$

[A] $\frac{3 + \sqrt{13}}{2}, \frac{3 + \sqrt{13}}{2}$

[B] $\frac{-3 + \sqrt{13}}{2}, \frac{-3 - \sqrt{13}}{2}$

[C] $-3 + \sqrt{13}, -3 - \sqrt{13}$

[D] $3 + \sqrt{13}, 3 + \sqrt{13}$

[8] _____

9. Solve using the quadratic formula: $4x^2 - 11x = 1$

[9] _____

10. What kind of solutions does $ax^2 - bx + c = 0$ have if $b^2 - 4ac = 0$?

[A] two imaginary solutions

[B] not enough information to tell

[C] two real solutions

[D] one real solution

[10] _____

11-15 Solve 3 of the following problems. You must solve one by each method (Quadratic Formula, Factoring).

ONLY 3 PROBLEMS WILL BE GRADED.

Solve:

11. $4x^2 + 7x = 15$

[11] _____

12. $6x^2 - x - 15 = 0$

[12] _____

13. $x^2 + 3x - 10 = 0$

[A] 5, 2

[B] -2, 5

[C] -5, 2

[D]

[13] _____

14. $2x^2 + x = 15$

[14] _____

15. $4x^2 + 3x = 10$

[15] _____

16. Determine whether the following equation has two real solutions, one real solution, or two complex solutions. $9x^2 + 90x + 25 = 0$

[A] two real solutions

[B] two complex solutions

[C]

[D] cannot be determined

[16] _____