

1~4. Solve each equation.

1. $12x^2 - 4x - 16 = 0$ (by using a AC method)

2. $-4x^2 + 11x = 6$ (by using a AC method)

3. $x^2 + 6x + 5 = 0$ (by using a completing form)

4. $-2x^2 + 4x + 6 = 0$ (by using a quadratic formula)

5. Solve a quadratic equation.

$$(x - 1)^2 = 3$$

6. Solve a quadratic equation.

$$12(x + 3)^2 = -8$$

Write the answers in the form $a + bi$.

7. **Simplify** $(4 - 6i) - (2 - 3i)$

8. $\frac{4-3i}{2+2i} - \frac{i}{1-i}$

9. $(4 + 8i)(6 + 12i)$

10. $\frac{1-i}{1-2i}$

11. Factor it out.

$$12x^2 - 3y^2$$

12. Solve the system of equations.

$$\begin{cases} x = 2y - 4 \\ -2x + 4y = 6 \end{cases}$$

13. Solve the system of equations.

$$\begin{cases} 3x + y + z = 4 \\ x - 2y - 2z = -1 \\ x - 3y + z = 11 \end{cases}$$

14. Find the standard form of a quadratic equation.

Vertex (2,-4), pass through (-1,5)

15. Find the standard form of a quadratic equation.

Vertex (-3,0), pass through (0,15)

16. Find the standard form of a quadratic equation.

Vertex (-1,7), pass through (-3,-9)

17. Find the standard form of a quadratic equation.

Vertex (0,0), pass through (-6,-3)

18. Find the vertex of a quadratic function

$$y = 2x^2 - 4x + 3$$

19. Find the vertex of a quadratic function.

$$y = -x^2 + 3x$$

20. Find the vertex of a quadratic function.

$$y = 3x^2 - 6x - 2$$