

Simplify. Express each number in terms of i .

1. $\sqrt{-27}$

2. $\sqrt{-48}$

Solve each equation.

3. $x^2 = -256$

4. $4x^2 + 144 = 0$

Find each complex conjugate.

5. $\sqrt{13} + 9i$

6. $-11 + 45i$

Find the value of the discriminant ($b^2 - 4ac$), the number of solutions, and the type of solutions.

7. $-x^2 - 5x + 6 = 0$

8. $4x^2 - 5x - 6 = 0$

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

Find the zeros of the function by using the Quadratic Formula.

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

11. $x^2 - 16 = 0$

12. $4x^2 + 4x = 15$

13. $x^2 - 16x + 64 = 0$

Determine whether the ordered pair is a solution of the inequality. Show your work

14. $y < x^2 - 2x + 4$, $(2, 1)$

15. $y > 2x^2 + x - 5$, $(-2, 0)$

16. $y \leq 2x^2 + 5x + 6$, $(2, -4)$

Solve each quadratic inequality algebraically, then graph the solution on a number line.

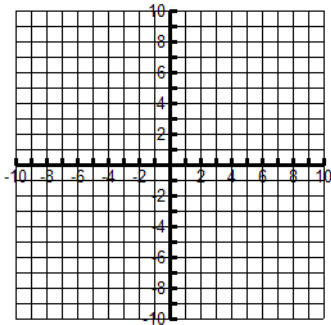
17. $x^2 - 11x + 13 < 25$

18. $x^2 - 5x - 24 \geq 0$

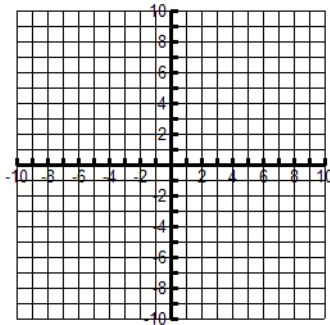
19. $x^2 - 5x + 3 \leq 3$

Graph each quadratic inequality.

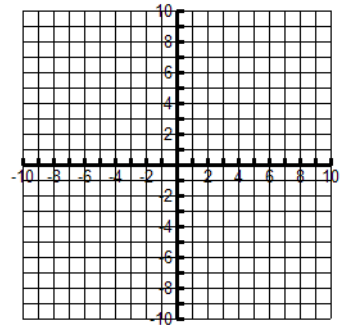
20. $y \leq x^2 - 2x + 4$



21. $y \leq -x^2 + 3x - 5$



22. $y > 2x^2 - 3x - 6$



Determine the Absolute Value of the Complex Number.

23. $|4 - 5i|$

24. $|45i|$

25. $|-1 - i|$

Add and Subtract the Complex Number.

26. $(2 + 4i) + (3 - 2i)$

27. $(-5 - 6i) + (1 - 12i)$

28. $(-8 - 3i) - (-6 - 7i)$

Multiply or simply the complex number.

29. $(2 + 2i)(4 - i)$

33. $(4 + 3i)^2$

31. $\frac{5 - 2i}{3 + i}$