

Unit 1 Review – Page 315 #4-19 (skip 17), 24-26, 30-32

Page 318 #2-8, List 9 graphing characteristics for #10, and #14 a-c

Solve the quadratic equation.

4.  $x^2 + 11x + 24 = 0$

5.  $x^2 - 8x + 16 = 0$

6.  $2x^2 + 3x + 1 = 0$

7.  $3u^2 = -4u + 15$

8.  $25v^2 - 30v = -9$

9.  $2x^2 = 200$

10.  $5x^2 - 2 = 13$

11.  $4(t + 6)^2 = 160$

12.  $-(k - 1)^2 + 7 = -43$

In Exercises 13–16, write the expression as a complex number in standard form.

13.  $(7 - 4i) + (-2 + 5i)$

14.  $(2 + 11i) - (6 - i)$

15.  $(3 + 10i)(4 - 9i)$

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

Solve the quadratic equation by completing the square.

18.  $x^2 + 4x = 3$

19.  $x^2 - 10x + 26 = 0$

Use the quadratic formula to solve the equation.

24.  $x^2 - 8x + 5 = 0$

25.  $9x^2 = 1 - 7x$

26.  $5v^2 + 6v + 7 = v^2 - 4v$

Solve the quadratic inequality.

30.  $x^2 - 3x - 4 \leq 0$

31.  $2x^2 + 7x + 2 \geq 0$

32.  $9x^2 > 49$

2. **MULTIPLE CHOICE** What is a correct factorization of  $4x^2 + 4x - 35$ ?

- (A)  $(4x + 5)(x - 7)$       (B)  $(4x - 5)(x + 7)$   
 (C)  $(2x + 5)(2x - 7)$       (D)  $(2x + 35)(2x - 1)$   
 (E)  $(2x - 5)(2x + 7)$

3. **MULTIPLE CHOICE** What are the zeros of  $y = x^2 - 13x + 40$ ?

- (A) -5, -8      (B) 5, -8      (C) 4, 10  
 (D) 5, 8      (E) -4, -10

4. **MULTIPLE CHOICE** What are all solutions of  $4(x - 1)^2 - 3 = 25$ ?

- (A) 3      (B) 8      (C)  $1 \pm \sqrt{7}$   
 (D) 0.5, 3      (E)  $1 \pm 2\sqrt{7}$

5. **MULTIPLE CHOICE** What does the product  $(-12 + 8i)(10 - i)$  equal?

- (A)  $-128 + 68i$       (B)  $-128 + 92i$   
 (C)  $-112 + 68i$       (D)  $-112 + 92i$   
 (E)  $-120 - 8i^2$

6. **MULTIPLE CHOICE** If  $x^2 + 8x + c$  is a perfect square trinomial, what is the value of  $c$ ?

- (A) 4      (B) 8      (C) 16  
 (D) 32      (E) 64

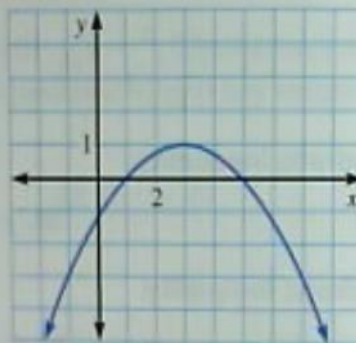
7. **MULTIPLE CHOICE** How many real and imaginary solutions does the equation  $3x^2 + 2x - 7 = 0$  have?

- (A) 2 real solutions, no imaginary solutions  
 (B) 1 real solution, no imaginary solutions  
 (C) 1 real solution, 1 imaginary solution  
 (D) no real solutions, 2 imaginary solutions  
 (E) no real solutions, 1 imaginary solution

8. **MULTIPLE CHOICE** What is the solution of  $x^2 + 7x - 8 > 0$ ?

- (A)  $x = -8$  or  $x = 1$       (B)  $x < -8$  or  $x > 1$   
(C)  $-8 < x < 1$             (D)  $x < -1$  or  $x > 8$   
(E)  $-1 < x < 8$

10. **MULTIPLE CHOICE** Which quadratic function *cannot* be represented by the graph shown?



List the 9 characteristics

14. **MULTI-STEP PROBLEM** You and your friend are playing tennis. Your friend lobs the ball high into the air, hitting it 3 feet above the court with an initial vertical velocity of 40 feet per second. You back up and prepare to hit an overhead smash to win the point.

- Use the model  $h = -16t^2 + v_0t + h_0$  to write an equation giving the height of the lobbed tennis ball as a function of time.
- At what time  $t$  does the ball reach its maximum height above the court? What is the maximum height?
- If you plan to hit the smash when the ball falls to a height of 8 feet above the court, how long do you have to prepare for the shot?
- If you plan to hit the smash when the ball is between 6 feet and 9 feet above the court (inclusive), what are your possible preparation times?
- Suppose you hit the smash when the ball is 8 feet above the court. It takes 0.1 second for the ball you smashed to hit the court on your friend's side of the net. What was the ball's initial vertical velocity coming off your racket?

Know how to do #14 a-c