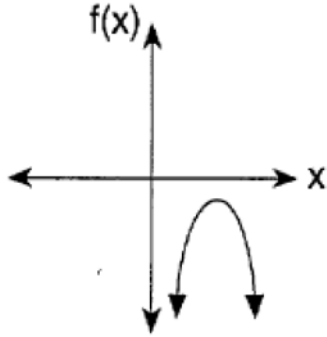


**A.REI.B.4: Using the Discriminant 3**

- 1 The accompanying diagram shows a sketch of a quadratic function,  $f(x)$ .



What is the nature of the roots of the quadratic equation  $f(x) = 0$ ?

- 1) imaginary
  - 2) real, rational, and equal
  - 3) real, rational, and unequal
  - 4) real, irrational, and unequal
- 2 The roots of the equation  $x^2 - 2x - 2 = 0$  are
- 1) real, rational, and equal
  - 2) real, rational, and unequal
  - 3) real, irrational, and unequal
  - 4) imaginary
- 3 If a quadratic equation with real coefficients has a discriminant of  $-2$ , then its roots must be
- 1) equal
  - 2) imaginary
  - 3) real and irrational
  - 4) real and rational
- 4 The roots of the equation  $2x^2 + 3x + 2 = 0$  are
- 1) irrational and unequal
  - 2) imaginary
  - 3) rational and equal
  - 4) rational and unequal
- 5 The roots of the equation  $2x^2 + 4x + 3 = 0$  are
- 1) real, rational, and unequal
  - 2) real, irrational, and unequal
  - 3) real, rational, and equal
  - 4) imaginary
- 6 The roots of the equation  $x^2 + 2x + 4 = 0$  are
- 1) real, rational, and unequal
  - 2) imaginary and unequal
  - 3) rational and equal
  - 4) rational and unequal
- 7 The roots of the equation  $x^2 + x + 1 = 0$  are
- 1) real, rational, and unequal
  - 2) real, irrational, and unequal
  - 3) real, rational, and equal
  - 4) imaginary
- 8 The roots of the quadratic equation  $5x^2 - 2x = -3$  are
- 1) imaginary
  - 2) real and irrational
  - 3) real, rational, and unequal
  - 4) real, rational, and equal
- 9 If a quadratic equation with real coefficients has a discriminant of  $3$ , then the two roots must be
- 1) real and rational
  - 2) real and irrational
  - 3) imaginary
  - 4) equal
- 10 If  $b^2 - 4ac < 0$ , the roots of the equation  $ax^2 + bx + c = 0$  must be
- 1) real, irrational, and unequal
  - 2) real, rational, and unequal
  - 3) real, rational, and equal
  - 4) imaginary

- 11 The roots of the equation  $x^2 + 7x - 8 = 0$  are
- 1) real, rational, and equal
  - 2) real, rational, and unequal
  - 3) real, irrational, and equal
  - 4) imaginary
- 12 The roots of the equation  $-3x^2 = 5x + 4$  are
- 1) real, rational, and unequal
  - 2) real, irrational, and unequal
  - 3) real, irrational, and equal
  - 4) imaginary
- 13 The roots of the quadratic equation  $4x^2 = 2 + 7x$  are best described as
- 1) real, equal, and rational
  - 2) real, unequal, and rational
  - 3) real, unequal, and irrational
  - 4) imaginary
- 14 The roots of the equation  $x^2 + 6x + 11 = 0$  are
- 1) real, rational, and unequal
  - 2) real, rational, and equal
  - 3) real, irrational, and unequal
  - 4) imaginary
- 15 The roots of the equation  $x^2 + 4x + 2 = 0$  are
- 1) real, rational, and equal
  - 2) real, rational, and unequal
  - 3) real, irrational, and unequal
  - 4) imaginary
- 16 The roots of the equation  $x^2 - 7x + 15 = 0$  are
- 1) imaginary
  - 2) real, rational, and equal
  - 3) real, rational, and unequal
  - 4) real, irrational, and unequal
- 17 Which term describes the roots of the equation  $2x^2 + 3x - 1 = 0$ ?
- 1) rational
  - 2) irrational
  - 3) equal
  - 4) imaginary
- 18 The roots of the equation  $x^2 - 6x + 7 = 0$  are
- 1) imaginary
  - 2) real and irrational
  - 3) real, rational, and unequal
  - 4) real, rational, and equal
- 19 The roots of the equation  $2x^2 + 6x + 5 = 0$  are
- 1) imaginary
  - 2) real and irrational
  - 3) real, rational, and unequal
  - 4) real, rational, and equal
- 20 The roots of the equation  $3x^2 - 7x = 5$  are
- 1) real, rational, and unequal
  - 2) real, rational, and equal
  - 3) real, irrational, and unequal
  - 4) imaginary
- 21 The roots of the equation  $3x^2 - 4x - 5 = 0$  are
- 1) real, rational, and equal
  - 2) real, rational, and unequal
  - 3) real, irrational, and unequal
  - 4) imaginary
- 22 The roots of the equation  $2x^2 + 3x - 5 = 0$  are
- 1) real, rational, and unequal
  - 2) real, rational, and equal
  - 3) real, irrational, and unequal
  - 4) imaginary

**A.REI.B.4: Using the Discriminant 3**  
**Answer Section**

1	ANS: 1	REF: 019735siii
2	ANS: 3	REF: 068424siii
3	ANS: 2	REF: 018528siii
4	ANS: 2	REF: 018629siii
5	ANS: 4	REF: 018723siii
6	ANS: 2	REF: 068931siii
7	ANS: 4	REF: 089032siii
8	ANS: 1	REF: 069528siii
9	ANS: 2	REF: 089533siii
10	ANS: 4	REF: 019628siii
11	ANS: 2	REF: 069619siii
12	ANS: 4	REF: 069733siii
13	ANS: 2	REF: 089732siii
14	ANS: 4	REF: 069822siii
15	ANS: 3	REF: 019928siii
16	ANS: 1	REF: 010022siii
17	ANS: 2	REF: 060131siii
18	ANS: 2	REF: 010234siii
19	ANS: 1	REF: 060222siii
20	ANS: 3	REF: 010326siii
21	ANS: 3	REF: 060334siii
22	ANS: 1	REF: 080332siii