

Unit 2 Review

Answer the question below.

1) How can you tell where the zeros of a function are by looking at its graph?

Solve each equation by taking square roots.

2) $6 + 49r^2 = 55$

3) $6n^2 - 6 = 144$

4) $6n^2 - 7 = 455$

5) $10a^2 + 6 = 406$

6) $6n^2 + 3 = -39$

7) $3n^2 + 10 = -14$

Solve each equation by factoring.

8) $p^2 + 8p + 12 = 0$

9) $x^2 - x - 2 = 0$

10) $n^2 - 6n + 13 = 8$

11) $x^2 = -8x - 7$

12) $3x^2 + 4x - 4 = 0$

13) $5n^2 + 8n - 21 = 0$

14) $2n^2 - 3n - 16 = 4$

15) $2r^2 - 9r = -10$

16) Write the formula used to find the discriminant.

17) What do you know about the zeros of a function if its discriminant is:

a) a positive number?

b) a negative number?

c) zero?

Find the discriminant of each quadratic equation then state the number and type of solutions.

18) $-9n^2 - 10n - 1 = 0$

19) $-9n^2 + 6n - 4 = -3$

20) $3m^2 = -7m - 2$

21) $7v^2 + 5 = -6v$

22) Write the Quadratic Formula.

23) What is the difference between what the Quadratic Formula tells you vs what the Discriminant tells you?

Solve each equation with the quadratic formula.

24) $n^2 + 11n - 19 = 7$

25) $2v^2 - 4v - 16 = 5$

$$26) 11a^2 + 8a = -11$$

Solve each equation by completing the square.

$$27) b^2 - 18b + 85 = 8$$

$$28) n^2 + 18n - 95 = -7$$

29) $x^2 + 20x + 13 = -4$

30) $x^2 + 4x + 21 = 4$

31) What is the value of i ?

32) What is the value of i^2 ?

Simplify.

33) $-4 + 8i + 7 + 5i$

34) $-8 + 7i - (-6 + 8i)$

35) $(-5 + 8i)(-7 - 6i)$

36) $(8 + 4i)^2$

Answers to Unit 2 Review

- 1) The zeros of the function are the x -intercepts.
- 2) $\{1, -1\}$ 3) $\{5, -5\}$
- 4) $\{\sqrt{77}, -\sqrt{77}\}$ 5) $\{2\sqrt{10}, -2\sqrt{10}\}$ 6) $\{i\sqrt{7}, -i\sqrt{7}\}$ 7) $\{2i\sqrt{2}, -2i\sqrt{2}\}$
- 8) $\{-2, -6\}$ 9) $\{-1, 2\}$ 10) $\{5, 1\}$ 11) $\{-7, -1\}$
- 12) $\left\{\frac{2}{3}, -2\right\}$ 13) $\left\{\frac{7}{5}, -3\right\}$ 14) $\left\{-\frac{5}{2}, 4\right\}$ 15) $\left\{\frac{5}{2}, 2\right\}$
- 16) 17) a) there are 2 real x -intercepts
- b) there are 2 imaginary x -intercepts
- c) there is one real x -intercept
- 18) 64; two real solutions 19) 0; one real solution 20) 25; two real solutions
- 21) -104; two imaginary solutions 22) $x = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$
- 23) The Quadratic Formula tells you where the zeros of the quadratic function are. The Discriminant only tells you how many there are.
- 24) $\{2, -13\}$ 25) $\left\{\frac{2 + \sqrt{46}}{2}, \frac{2 - \sqrt{46}}{2}\right\}$
- 26) $\left\{\frac{-4 + i\sqrt{105}}{11}, \frac{-4 - i\sqrt{105}}{11}\right\}$ 27) $\{11, 7\}$ 28) $\{4, -22\}$
- 29) $\{-10 + \sqrt{83}, -10 - \sqrt{83}\}$ 30) $\{-2 + i\sqrt{13}, -2 - i\sqrt{13}\}$ 31) $\sqrt{-1}$
- 32) -1 33) $3 + 13i$ 34) $-2 - i$ 35) $83 - 26i$
- 36) $48 + 64i$