

1. Find the product of the solutions of the equation $\sqrt{x^2 + 5} = 3$.
- 0
 - 4
 - 9
 - 9
 - 5
2. Solve $7\sqrt{x} + 8 = x$.
- $x = 64$ or 1
 - $x = 64$ or -64
 - $x = 64$
 - $x = -8$
 - $x = -\frac{8}{7}$
3. Solve $\sqrt[3]{x - 3} = 4$.
- $x = 67$
 - $x = 67$ or 1
 - $x = 67$ or -67
 - $x = 3$
 - $x = 7$ or -7
4. Write $(2x - 3y)^{\frac{1}{2}}$ in radical form.
- $(2x - 3y)^2$
 - $\sqrt{3x + 2y}$
 - $\sqrt{2x} - \sqrt{3y}$
 - $\sqrt{2x - 3y}$
 - $(2x)^{\frac{1}{2}} - (3y)^{\frac{1}{2}}$
5. Simplify $\frac{\sqrt[3]{7}}{\sqrt[4]{7}}$.
- $\sqrt[12]{7}$
 - $\sqrt[12]{49}$
 - $\sqrt[7]{7}$
 - $\frac{1}{\sqrt[12]{7}}$
 - $\frac{1}{\sqrt{7}}$
6. Write $(6 + 5i)^2$ in the standard form of a complex number.
- $36 - 25i$
 - $11 + 60i$
 - $11 - 60i$
 - $-11 - 60i$
 - $36 + 25i$
7. Write $\frac{-2 + 14i}{-1 + i}$ in the standard form of a complex number.
- $16 - 12i$
 - $-8 + 6i$
 - $8 - 6i$
 - $8i - 6$
 - $1 + 14i$
8. Find one of the factors of $3x^2 + 22x + 24 = 0$.
- $4x - 3$
 - $x - 6$
 - $x + 6$
 - $3x - 4$
 - $x + 24$
9. Solve the quadratic equation $(5x + 1)^2 = 25$.
- $x = 4$ or 6
 - $x = \frac{4}{5}$ or $-\frac{6}{5}$
 - $x = 4$ or -4
 - $x = \frac{4}{5}$ or $-\frac{4}{5}$
 - $x = 5$ or -5
10. Use the method of completing the square to rewrite the quadratic equation $x(x + 6) = 7$.
- $(x + 6)^2 = 49$
 - $(x - 6)^2 = 49$
 - $(x + 3)^2 = 16$
 - $(x - 3)^2 = -16$
 - $(x - 3)^2 = 16$

11. Solve the quadratic equation $(x - 3)(x + 4) = -6$.

- a) $x = -3$ or 2
- b) $x = 3$ or -2
- c) $x = 3$ or 2
- d) $x = 3$ or -4
- e) $x = -3$ or -10

12. Use the discriminant to determine the number of solutions for $x^2 - 9x - 136 = 0$.

- a) two non-real complex solutions
- b) two distinct real solutions
- c) one real solution with a multiplicity of two
- d) one real solution and one non-real complex solution
- e) no real or complex solutions

13. Solve $8x^2 - 3x - 38 = 0$.

- a) -2 or $\frac{19}{8}$
- b) $\frac{19}{8}$ or 2
- c) -2 or $-\frac{19}{8}$
- d) $-\frac{19}{8}$ or 2
- e) 2 or $\frac{8}{19}$

14. Solve $5m^2 - 13m = 0$.

- a) $\pm \frac{5}{13}$
- b) $\pm \sqrt{13}$
- c) $\pm \frac{13}{5}$
- d) $-\frac{13}{5}$ or 0
- e) 0 or $\frac{13}{5}$

15. Solve $\frac{5}{x+2} - \frac{3}{x} = -4$.

- a) $\{-3, \frac{1}{2}\}$
- b) $\{-\frac{1}{2}, 3\}$
- c) $\{-2, 4\}$
- d) $\{-4, 2\}$
- e) $\{-3, 5\}$

16. Suppose that the sum of two whole numbers is 9 and the sum of their reciprocals is $\frac{9}{20}$. Find the product of these numbers.

- a) 63
- b) 56
- c) 48
- d) 42
- e) 20

17. A man completed a job for \$120. It took him 5 hours longer than he expected, and therefore he earned \$4 per hour less than he anticipated. How long did he originally expect that it would take to do the job?

- a) 10 hours
- b) 9 hours
- c) 8 hours
- d) 6 hours
- e) 12 hours

18. Solve $(2x - 1)(4x + 9) \geq 0$.

- a) $(-\infty, 1) \cup (2, \infty)$
- b) $(-\infty, -\frac{9}{4}] \cup [\frac{1}{2}, \infty)$
- c) $(-\infty, -1] \cup [2, \infty)$
- d) $(2, 9)$
- e) $[-\frac{9}{4}, \frac{1}{2}]$

19. Solve $\frac{-x+9}{x-4} \leq 0$.

- a) $(-\infty, 4) \cup [9, \infty)$
- b) $(-\infty, -9] \cup [4, \infty)$
- c) $(-\infty, -4) \cup [9, \infty)$
- d) $(4, 9]$
- e) $(-\infty, \infty)$

20. Solve $\frac{3x+3}{x+4} \leq 2$.

- a) $(-4, 5]$
- b) $(-\infty, -4) \cup [5, \infty)$
- c) $(-\infty, -3) \cup (3, \infty)$
- d) $(-3, 4]$
- e) $(-\infty, \infty)$