College Prep Algebra
Quiz 1.4-1.5

Solve the equation.

1. $2x^3 - 5x^2 - 18x + 45 = 0$

A. $\pm 3i, \frac{5}{2}$
B. $\pm 3i, -\frac{5}{2}$
C. $\pm 3, \frac{5}{2}$
D. $\pm 3, -\frac{5}{2}$

2. $x^3 - 49x = 0$

A. ± 7
B. $\pm 7i$
C. $\pm 7, 0$
D. 0

3. $x^4 - 12x^2 + 20 = 0$

A. $\pm\sqrt{2}, \pm 2\sqrt{2}$
B. $\sqrt{2}, 2\sqrt{2}$
C. $-\sqrt{2}, -2\sqrt{2}$
D. $\emptyset$

4. $x^4 - 81 = 0$

A. $\pm 3, \pm\sqrt{-9}$
B. $\pm 3, \pm 3i$
C. $\pm 3, \pm\sqrt{-3}$
D. $\pm 3, \pm 9i$

5. $3x^{\frac{2}{3}} + 4x^{\frac{1}{3}} = 4$

A. $-8, \frac{8}{27}$
B. $8, -\frac{8}{27}$
C. $6, -\frac{2}{3}$
D. $6, \frac{2}{3}$

6. $4x^{\frac{2}{3}} - 8x^{\frac{1}{3}} - 5 = 0$

A. $-\frac{15}{6}, \frac{1}{6}$
B. $\frac{15}{6}, -\frac{1}{6}$
C. $-\frac{125}{8}, \frac{1}{8}$
D. $\frac{125}{8}, -\frac{1}{8}$

7. $\sqrt{x-2} = \sqrt{3-x}$

A. $\frac{\sqrt{2}}{5}$
B. 1
C. 2
D. $\emptyset$

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

A. $-\frac{3}{5}$
B. $-\frac{11}{3}$
C. $-\frac{19}{5}$
D. $-\frac{17}{3}$

9. $x^{\frac{2}{3}} + 5 = 14$

A. 9
B. 27
C. 4.3
D. 82.8

10. $3\sqrt{2x-1} = x + 3$

A. $6 \pm 3\sqrt{2}$
B. $\frac{12 \pm 6\sqrt{2}}{2}$
C. $2, 6$
D. $12 \pm 4\sqrt{6}$

11. $\frac{3x}{x+2} + \frac{x-1}{x-3} = \frac{x+1}{x+2}$

A. $6 \pm 2\sqrt{6}$
B. $6 \pm 4\sqrt{3}$
C. $\frac{3 \pm \sqrt{2}}{3}$
D. $6 \pm 3\sqrt{6}$

12. $x^{\frac{1}{4}} + 11 = 15$

A. 32
B. 64
C. 128
D. 256

Solve each inequality. Write your answer in interval notation.

13. $3x - 7 \geq 11 \ \ or \ \ 4x + 5 < 25$

A. $(-\infty, 5) \cup [6, \infty)$
B. $(-\infty, -5) \cup [6, \infty)$
C. $(-\infty, 5) \cup [-6, \infty)$
D. $(-\infty, -5) \cup [-6, \infty)$

14. $2x + 7 < 17 \ \ and \ \ -3x - 5 \leq 7$

A. $(-\infty, -4) \cap [5, \infty)$
B. $[-4,5)$
C. $(-\infty, -5) \cap [4, \infty)$
D. $[4, -5)$

15. $|4x - 3| > 9$

A. $\left(-\infty, \frac{3}{2}\right) \cup (-3, \infty)$
B. $\left(-\infty, -\frac{3}{2}\right) \cup (-3, \infty)$
C. $\left(-\infty, -\frac{3}{2}\right) \cup (3, \infty)$
D. $\left(-\infty, \frac{3}{2}\right) \cup (3, \infty)$

16. $|5x + 5| \leq 10$

A. $[3,1]$
B. $[-3,1]$
C. $[-3, -1]$
D. $[3, -1]$

Use the critical value method to solve each inequality. Write your answer in interval notation.

17. $x^2 - 2x - 8 < 0$

A. (-2,4)
B. $(2, -4)$
C. [-2,4]
D. [2,-4]

18. $2x^3 + x^2 - 32x - 16 \geq 0$

A. $[-4,1] \cup [\frac{1}{2}, \infty)$
B. $[-4, \frac{1}{2}] \cup [-4, \infty)$
C. $[-4,1] \cup [\frac{1}{2}, \infty)$
D. $[-4, -\frac{1}{2}] \cup [4, \infty)$

19. $\frac{x-4}{x+1} \geq 0$

A. $(-\infty, 1] \cup [-4, \infty)$
B. $(-\infty, -1] \cup [4, \infty)$
C. $(-\infty, 1] \cap [-4, \infty)$
D. $(-\infty, -1] \cap [4, \infty)$

20. $\frac{3x-1}{x-2} < 2$

A. (-1,2)
B. (4,-3)
C. (-3,2)
D. (-2,5)