

Math 10
Lesson 1.R
Review

Find all real solutions for each equation.

1. $2 - \frac{x}{3} = 8$

2. $-2(5 - 3x) + 8 = 4 + 5x$

3. $\frac{3x}{4} - \frac{x}{3} = \frac{1}{12}$

4. $\frac{x}{x-1} = \frac{6}{5}$

5. $x(1-x) = 6$

6. $\frac{1}{2}\left(x - \frac{1}{3}\right) = \frac{3}{4} - \frac{x}{6}$

7. $(x-1)(2x+3) = 3$

8. $2x + 3 = 4x^2$

9. $\sqrt[3]{x^2 - 1} = 2$

10. $x(x+1) + 2 = 0$

11. $x^4 - 5x^2 + 4 = 0$

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

13. $x^{3/2} + 5x^{1/2} = 0$

14. $2\sqrt[3]{x^2} - \sqrt[3]{x} = 1$

15. $x^{-6} - 7x^{-3} - 8 = 0$

Find all real solutions for each inequality.

16. $\frac{2x-3}{5} + 2 \leq \frac{x}{2}$

17. $-9 \leq \frac{2x+3}{-4} \leq 7$

18. $6 > \frac{3-3x}{12} > 2$

19. Starting from a point 150 miles from shore, a raft drifts toward shore at a rate of 5 miles per hour. A rescue helicopter flies toward the raft at a rate of 90 miles per hour. How long will it take for the helicopter to reach the raft?

20. The hypotenuse of a right triangle is 17 inches. One leg of the triangle is 13 inches longer than the other leg. Find the length of each leg of the triangle.

21. A Metra commuter train leaves the station at 12 noon. Two hours later an Amtrak train leaves on the same track. The Amtrak train's speed is 50 miles per hour faster than the Metra train's speed. At 3 p.m. the Amtrak train is 10 miles behind the Metra train. Find the speed of each train.