

4.1 Solving Equations

Name _____ Period _____ Date _____

Solve each equation. Show all of your work. Leave answers as fractions.

1. $112 = 5(2 + 5x) + 2$

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

3. $-\frac{2}{10} = \frac{10}{2x-5}$

4. $-\frac{2}{3} + x = -\frac{47}{48}$

5. $2 = \frac{x-10}{3}$

6. $|x| = 4$

7. $|x + 1| = 6$

8. $|x| = -8$

9. $-2|x - 1| = -18$

10. $|3x| - 16 = -4$

11. $-2|4x - 5| + 6 = -26$

12. $\frac{1}{2}|3x + 4| - 8 = 12$

Solve each equation by factoring, using the quadratic formula, or using the root principle.

13. $3x^2 - 7x - 6 = 0$

14. $2x^3 - 5 = 49$

15. $-12 = x^2 + 10x + 12$

16. $0 = x^2 - 2$

17. $(x + 3)^2 - 8 = 41$

18. $-4x^2 + 3x + 1 = 0$

19. $0 = x^2 - 8x - 4$

20. $(x + 7)(x^2 - 25) = 0$

21. $x^4 - 1 = 15$

22. $x^2 - 36 = 0$

23. $5x^2 = 30x$

Solve each radical equation and state the restrictions. SHOW WORK! (no work = no credit)

24. $\sqrt{4x+1}-5=0$

25. $3\sqrt{x}+3=15$

26. $\sqrt{4x-23}-3=2$

27. $\sqrt[3]{x-1}+4=5$

28. $\sqrt[4]{2x-5}-3=0$

29. $2\sqrt[5]{31x+25}-7=3$

30. $6\sqrt[4]{2x-7}+8=32$

31. $-\sqrt{x-4}+3=-1$

32. $\sqrt{3x+7}+1=x$

33. $\sqrt{x^2+3}=x+1$

Read the following situations. Then answer the question. Define your variable. Show your work.

34. Luis and three friends went golfing. Two of the friends rented clubs for \$6 each. (Luis and the other friend have their own clubs.) The total cost of the rented clubs and green fees for the group was \$76. What was the cost of the green fee for each person?

35. George received a 94% on the first test of the quarter and an 89% on the second test of the quarter. In order to go to the football game next week, he must have an average higher than 93%. What is the lowest score he can get on the third test so he can go to the football game?

36. A machine is used to fill a bag with 4 pounds of granulated sugar. After the bags are filled, another machine weighs them. If the bag weighs 0.3 ounces more or less than the desired weight, the bag is rejected. What is the heaviest and lightest bag the machine will approve? Leave answer in ounces. (1 pound = 16 ounces)