Algebra 2
Chapter 1 Review

Plot the following numbers on a number line.

1. $-\sqrt{6}, \frac{4}{3}, \pi$

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2. $-\frac{1}{4}, -2\frac{1}{2}, 3.15$

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Order the numbers from Least to Greatest.

3. $0, -\frac{1}{2}, \frac{4}{5}, \frac{1}{6}, -\sqrt{\frac{1}{3}}$

4. $-4, -\frac{9}{2}, -\frac{1}{3}, -\frac{1}{4}, -\pi$

Compare each pair of numbers using <, >, =.

5. $1\frac{5}{6}$ 1.95

6. $\sqrt{8}$ 2.9

7. $-2\frac{8}{9}$ -2.75

8. $\sqrt{30}$ 5.3

Simplify using the order of operations.

9. $8 \div 4 + (15 \div 3 - 2^2) * 6$

10. $6^2 - [9 + (7 - 5)^3] + 49 \div 7$

Evaluate the expression at a given value.

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

12. $y^3 - 7 = y + 3; x = 2$

13. $2b - 5b^2 + 1 = b^2; b = 6$

14. $6z + z - 5 = 2x + 12; z = -3$

Simplify the following expressions.

15. $12(2x-4)+5x-20$

16. $8n-2-5n^2+9x+14$

17. $-3x(2x-3)-(x+1)$

18. $3p^2+6(p-3)-2$

Solve the equations for specific variables.

19. $6x-3y=9; solve\ for\ y$

21. $5f-6g=14; solve\ for\ f$

20. $4c+9d=16; solve\ for\ c$

Solving Linear Equations.

22. $-3+x=-1$

24. $\frac{m}{-4}=14$

23. $r+6=2$

25. $\frac{8}{5}a=-\frac{72}{13}$

Two-Step Equations.

26. $-11x+4=125$

28. $-4x+3=-5$

27. $6-x=-22$

29. $\frac{2}{7}x+8=20$

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Multi-Step Equations.

30. $7(x-20)=x+4$

31. $3(x-4)=5(x+6)$

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

Solving Linear Inequalities. Graph the solution set on a number line.

33. $2x>14$

34. $4(2x-1)\geq 3(2x+1)$

35. $10-\frac{3}{4}x\leq -8$

Compound Inequalities. Graph the solution set on a number line.

36. $8\leq 3-5x<28$

37. $0<\frac{x}{5}<4$

38. $2x-7>-13\ or\ \frac{1}{3}x+5\leq 1$

39. $\frac{3}{4}x+7\geq -29\ or\ 16-x>2$

Absolute Value Equations.

40. $|2x+15|=3$

41. $\left|\frac{x}{6}+4\right|=5$

42. $|-3x + 20| = 35$

43. $|12x - 18| = 0$

Absolute Value Inequalities.

44. $|8x - 5| < 27$

46. $|6 - 7x| \leq 34$

45. $\left|\frac{5}{6}x + 1\right| > 6$

47. $|19 + 3x| \geq 46$

Word Problems.

Solve.

48. 12 and three times a number add to 32.

49. 8 less than a number is 15.

50. Four consecutive numbers add to equal 46.

Scenarios.

A Rec. Center charges each person $8 to enter the facility and an additional $2 for every hour they spend inside.

a) Model the situation with a two variable equation.
b) How much would it cost you and your friend to spend 6 hours inside the facility?

A college charges students $4 to rent a calculator for a 50 minute class, $6 for a 1 hour and 20 minute class, and $9 for a 2 hour and 40 minute class. Henry needs to rent a calculator for a 50 minute class and a 2 hour and 40 minute class. John needs to rent a calculator for a 50 minute class and a 1 hour and 20 minute class. Sally needs to rent a calculator for two 2 hour and 40 minute classes.

a) How much money will it cost each person to rent their calculators for their required classes?
b) How much will it cost all the students in total?