Algebra 1 Skills for Alg 2/Trig Name:_____

A. Solve each inequality and graph the solution set on a number line.

1. $5(2x+3) > 2(x-3) + x$

2. $3(x-2) - 2 < x - 5$

3. $5(x-7) + 2(1-x) \geq 3(x-11)$

4. $4x = 3(2-3x) > 5(2-x)$

5. $0 \leq x - 2 < 3$

6. $2x - 1 \leq 5 \; or \; 3x - 5 > 10$

7. $|2x+5| < 3$

8. $|3x+2| > 4$

B. Find the slope of the line containing the given points.

9. $(4,-1), (-2,3)$

10. $(3,-4), (3,-2)$

C. Find the slope of the line:

11. $2x + 4y = 5$

D. Solve each system

12. $\begin{cases} 2x - 7 = 10 \\ 5x - 6y = 2 \end{cases}$

13. $\begin{cases} 6x + 5y = -2 \\ 2x = 6 - 3y \end{cases}$

E. For the function, $f(x) = 1 - 2x$ find:

14. $f(-2)$

15. $f(-1)$

16. $f(3a)$

17. $f(3)$

F. Simplify:

18. $x^2y^2 - x^2 + 8x^2y^2 + 5xy^2 - 2x^2$

19. $4x^2yz^3 - xyz + 2x^2yz^3 + 5x^3y^2z^2$

20. $(-2u^2)(uv^2)(-u^2v^2)$

21. $(4a^3b^2)^2$

22. $(x^2y)^3(xy^3)^2$

23. $\frac{-12x^3y}{4x^2y^2}$

24. $\frac{3x^2}{y^2} \cdot \frac{6y}{6x}$

25. $\frac{x^2}{y} \cdot \left(\frac{3x}{y^2}\right)^2$

26. $\frac{x^2-y^2}{(x-y)^2}$

27. $\frac{x^2-5x+6}{x^2-7x+12}$

28. $\frac{8t^2}{3} \div \frac{2t}{9}$

29. $\frac{4x^2-1}{x^2-4} \cdot \frac{x-2}{2x-1}$

30. $\frac{x+2}{3} + \frac{x-4}{6}$

31. $\frac{y-4}{2y} - \frac{y-6}{3y}$

32. $\frac{1}{x^2+x} + \frac{1}{x^2-x}$

Solve each equation over the real numbers.

33. $x(x+1)(x-2)=0$

34. $y^2+3=4y$

35. $x^3-x=0$

36. $\frac{x}{9}+\frac{1}{6}=\frac{2}{3}$

37. $\frac{2y-1}{6}=\frac{y+2}{4}+\frac{1}{3}$

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

39. $\frac{(y+1)^2}{(y-3)^2}=1$

40. $\frac{1}{x-2}+\frac{1}{x+2}=\frac{4}{x^2-4}$

41. $\sqrt{4x-3}=5$

42. $3\sqrt{x}-5=18$

43. $\sqrt{2y^2-7}=5$

44. $3y^2=1-y$

45. $2t(t+1)=7$

46. $(3m-5)(2m-2)=6$

H. Simplify: Assume each radical represents a real number.

47. $\frac{4}{\sqrt{2}}$

48. $\frac{\sqrt{96}}{\sqrt{3}}$

49. $\sqrt{30}\cdot\sqrt{42}$

50. $\sqrt{50}+\sqrt{18}$

51. $3\sqrt{12}-\sqrt{48}$