Name ______________________________ **Date** __________

5-37 Simplifying Radical Expressions

Solve each problem and write the value of each letter in the spaces after the problem. To complete the statement below, write the letter above its corresponding number. The first problem is done for you.

1. $\sqrt{48} = N\sqrt{S}$ N = 4 S = 3
2. $\sqrt{56} = D\sqrt{H}$ D = ____ H = ____
3. $\sqrt{49} = R$ R = ____
4. $\sqrt{75} = A\sqrt{S}$ A = ____ S = ____
5. $\sqrt{I} = I$ I = ____
6. $\sqrt{250} = A\sqrt{C}$ A = ____ C = ____
7. $\sqrt{27} = S\sqrt{S}$ S = ____
8. $\sqrt{81} = T$ T = ____
9. $\sqrt{135} = S\sqrt{Y}$ S = ____ Y = ____
10. $\sqrt{50} = A\sqrt{D}$ A = ____ D = ____
11. $\sqrt{M} = S\sqrt{D}$ M = ____ S = ____ D = ____
12. $\sqrt{52} = D\sqrt{F}$ D = ____ F = ____
13. $\sqrt{121} = G$ G = ____
14. $\sqrt{384} = O\sqrt{E}$ O = ____ E = ____
15. $\sqrt{144} = L$ L = ____
16. $\sqrt{68} = D\sqrt{W}$ D = ____ W = ____
17. $\sqrt{171} = S\sqrt{B}$ S = ____ B = ____
18. $\sqrt{U} = N$ U = ____ N = ____
19. $\sqrt{72} = E\sqrt{D}$ E = ____ D = ____
20. $\sqrt{T} = S$ T = ____ S = ____

		N					S						S
7	6	4	6		2	6	3	10	5	7	9	6	3

			S				S						
13	1	7	3	9		16	3	6	2		9	14	6

								S					
7	5	2	1	10	5	12		3	15	18	19	8	12

								S				
9	14	5	9		17	6		3	9	1	12	12

	S							.
16	3	6		9	8	2	5	15

5-32. **O.** –5; **H.** $\frac{9}{28}$; **A.** $\frac{4}{35}$; **U.** ∅; **E.** 7; **S.** 6; **B.** $\frac{2}{5}$; **T.** $-\frac{1}{3}$; **P.** $\frac{1}{2}$; **N.** 5; **L.** –1; **R.** –14 **I.** $-2\frac{1}{2}$; **M.** –3, 2; **V.** 1, 4; **X.** 6, $-\frac{2}{3}$

Some PROBLEMS HAVE EXTRANEOUS SOLUTIONS.

5-33. **1.** L, I; **2.** N, E; **3.** I, S; **4.** T, A; **5.** K, E; **6.** N, F; **7.** R, O; **8.** M, T; **9.** H, E; **10.** L, A; **11.** T, I; **12.** N, T; **13.** E, R; **14.** M, L; **15.** I, N; **16.** U, M; **17.** M, E; **18.** A, N; **19.** I, N; **20.** G, F **21.** L, A; **22.** X, E; **23.** N, C; **24.** H, O; **25.** R, D

The word LINE IS TAKEN FROM THE LATIN TERM "LINUM" MEANING FLAXEN CHORD.

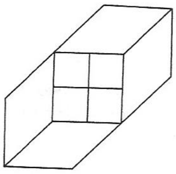
5-34. **1.** C; **2.** A; **3.** R; **4.** T; **5.** E; **6.** S; **7.** I; **8.** A; **9.** N; **10.** C; **11.** O; **12.** O; **13.** R; **14.** D; **15.** I; **16.** N; **17.** A; **18.** T; **19.** E; **20.** S; **21.** Y **22.** S; **23.** T; **24.** E; **25.** M

The CARTESIAN COORDINATE SYSTEM.

5-35. **1.** U, –2; **2.** S, 2; **3.** E, 3; **4.** D, 4; **5.** B, 5; **6.** Y, 6; **7.** L, 17; **8.** E, 3; **9.** O, 10; **10.** N, –3; **11.** H, –4; **12.** A, 37; **13.** R, –7; **14.** D, 4; **15.** E, 3; **16.** U, 19; **17.** L, 17; **18.** E, 3; **19.** R, –7

The expression f(x) to represent a function was first USED BY LEONHARD EULER.

5-36. **1.** 5, 3; **2.** 3, –3; **3.** 2, 0; **4.** 5, –2; **5.** 2, 10; **6.** –2, –1; **7.** –4, –9; **8.** 4, 0; **9.** 0, –3; **10.** –2, 10; **11.** –1, 1; **12.** 4, 10; **13.** 8, 6; **14.** –3, 1



5-37. **1.** 4, 3; **2.** 2, 14; **3.** 7; **4.** 5, 3; **5.** 1; **6.** 5, 10; **7.** 3; **8.** 9; **9.** 3, 15; **10.** 5, 2; **11.** 3, 2, 18; **12.** 2, 13; **13.** 11; **14.** 8, 6; **15.** 12; **16.** 2, 17; **17.** 3, 19; **18.** 16, 4; **19.** 6, 2; **20.** 9, 3

RENE DESCARTES FIRST USED THE RADICAL SYMBOL THAT WE STILL USE TODAY.

5-38.

1. $3\sqrt{15}$; **2.** 5; **3.** $5\sqrt{3}$; **4.** $2\sqrt{2}$; **5.** $5\sqrt{3}$; **6.** 5; **7.** $3\sqrt{3}$; **8.** $\sqrt{6}$; **9.** $3\sqrt{15}$; **10.** $3\sqrt{15}$; **11.** $\sqrt{6}$; **12.** $5\sqrt{3}$; **13.** $8\sqrt{10}$; **14.** 7; **15.** $3\sqrt{3}$; **16.** 5; **17.** 7; **18.** $2\sqrt{2}$; **19.** $8\sqrt{10}$; **20.** $2\sqrt{2}$

5-39. **L.** 49; **N.** 0.25; **T.** 18; **A.** 0.8; **D.** 20; **C.** 11; **R.** 9; **V.** 4; **H.** ∅ **I.** 6.25; **S.** 25; **E.** 2.25; **B.** 7

A radical equation is an equation with VARIABLES IN THE RADICAND.