

Name _____

KEY

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

D = $\frac{2}{\quad}$

RENE DESCARTES
 7 6 4 6 2 6 3 10 5 7 9 6 3
FIRST USED THE
 13 1 7 3 9 16 3 6 2 9 14 6
radical symbol
 7 5 2 1 10 5 12 3 15 18 19 8 12
that we still
 9 14 5 9 17 6 3 9 1 12 12
USE TODAY
 16 3 6 9 8 2 5 15

2. $\sqrt{56} = 2\sqrt{14}$

Factorization: $56 = 2 \times 28 = 2 \times 2 \times 14 = 2 \times 2 \times 2 \times 7$

3. $\sqrt{49} = 7$

4. $\sqrt{75} = 5\sqrt{3}$

Factorization: $75 = 3 \times 25 = 3 \times 5 \times 5$

5. $\sqrt{1} = 1$

6. $\sqrt{250} = 5\sqrt{10}$

Factorization: $250 = 2 \times 125 = 2 \times 5 \times 25 = 2 \times 5 \times 5 \times 5$

7. $\sqrt{27} = 3\sqrt{3}$

Factorization: $27 = 3 \times 9 = 3 \times 3 \times 3$

8. $\sqrt{81} = 9$

9. $\sqrt{135} = 3\sqrt{15}$

Factorization: $135 = 5 \times 27 = 3 \times 9 = 3 \times 3 \times 3 \times 5$

10. $\sqrt{50} = 5\sqrt{2}$

Factorization: $50 = 2 \times 25 = 2 \times 5 \times 5$

11. $\sqrt{18} = 3\sqrt{2}$

Factorization: $18 = 3 \times 3 \times 2$

12. $\sqrt{52} = 2\sqrt{13}$

Factorization: $52 = 2 \times 26 = 2 \times 2 \times 13$

13. $\sqrt{121} = 11$

14. $\sqrt{384} = 2 \cdot 2 \cdot 2 \sqrt{6} = 8\sqrt{6}$

Factorization: $384 = 2 \times 192 = 2 \times 2 \times 96 = 2 \times 2 \times 2 \times 48 = 2 \times 2 \times 2 \times 2 \times 24 = 2 \times 2 \times 2 \times 2 \times 2 \times 12 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 6 = 2^7 \times 3$

15. $\sqrt{144} = 12$

16. $\sqrt{68} = 2\sqrt{17}$

Factorization: $68 = 2 \times 34 = 2 \times 2 \times 17$

17. $\sqrt{171} = 3\sqrt{19}$

Factorization: $171 = 3 \times 57 = 3 \times 3 \times 19$

Factorization: $171 = 2 \times 12 = 2 \times 2 \times 3 \times 3 = 2^2 \times 3^2$

18. $\sqrt{16} = 4$

Factorization: $16 = 4 \times 4$

19. $\sqrt{72} = 6\sqrt{2}$

Factorization: $72 = 2 \times 36 = 3 \times 18 = 3 \times 2 \times 9 = 3 \times 2 \times 3 \times 3 = 2 \times 3^2 \times 3 = 2 \times 3^3$

20. $\sqrt{9} = 3$

Factorization: $9 = 3 \times 3$