

# Pre AP Homework

Unit 11: Radicals and Sequences  
Simplifying & Estimating Practice- Day 2

Name: \_\_\_\_\_  
Date: \_\_\_\_\_ Period: \_\_\_\_\_

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Determine between which two whole numbers does each of the following radicals falls:

1.  $\sqrt{91}$   $9 + 10$   $\begin{array}{r} 9 \\ 81 \overline{) 91} \\ \underline{81} \phantom{00} \\ 10 \phantom{00} \end{array}$
2.  $\sqrt{83}$   $9 + 10$   $\begin{array}{r} 9 \\ 81 \overline{) 83} \\ \underline{81} \phantom{00} \\ 2 \phantom{00} \end{array}$
3.  $\sqrt{115}$   $10 + 11$   $\begin{array}{r} 10 \\ 100 \overline{) 115} \\ \underline{100} \phantom{00} \\ 15 \phantom{00} \end{array}$
4.  $\sqrt{200}$   $14 + 15$   $\begin{array}{r} 14 \\ 196 \overline{) 200} \\ \underline{196} \phantom{00} \\ 4 \phantom{00} \end{array}$
5.  $\sqrt{450}$   $21 + 22$   $\begin{array}{r} 21 \\ 441 \overline{) 450} \\ \underline{441} \phantom{00} \\ 9 \phantom{00} \end{array}$

Radicals with variables

$$\sqrt{64x^2} = 8x$$

$8 \cdot 8 \cdot x \cdot x$

$$\sqrt{18a^3b} = 3a\sqrt{2ab}$$

$3 \cdot 3 \cdot a \cdot a \cdot b$

$$\sqrt{32m^4n^2} = 4m^2n\sqrt{2}$$

$4 \cdot 4 \cdot m^2 \cdot m^2 \cdot n \cdot n$

Simplify the following radicals:

6.  $2\sqrt{24}$   $4\sqrt{6}$
7.  $5\sqrt{45}$   $15\sqrt{5}$
8.  $2\sqrt{289}$   $34$
9.  $4\sqrt{50}$   $20\sqrt{2}$
10.  $3\sqrt{32}$   $12\sqrt{2}$

Simplify the following radicals to have a rational denominator:

$$11. \frac{4}{\sqrt{5}} \left( \frac{\sqrt{5}}{\sqrt{5}} \right) = \frac{4\sqrt{5}}{5}$$

$$12. \frac{2}{\sqrt{16}} = \frac{2}{4} = \frac{1}{2}$$

$$13. \frac{5}{\sqrt{10}} \left( \frac{\sqrt{10}}{\sqrt{10}} \right) = \frac{5\sqrt{10}}{10} = \frac{\sqrt{10}}{2}$$

$$14. \frac{3}{\sqrt{7}} \left( \frac{\sqrt{7}}{\sqrt{7}} \right) = \frac{3\sqrt{7}}{7}$$

$$15. \frac{2}{\sqrt{8}} \left( \frac{\sqrt{8}}{\sqrt{8}} \right) = \frac{2\sqrt{8}}{8} = \frac{\sqrt{8}}{4} = \frac{2\sqrt{2}}{4} = \frac{\sqrt{2}}{2}$$

$$\frac{2}{2\sqrt{2}} = \frac{1}{\sqrt{2}} \left( \frac{\sqrt{2}}{\sqrt{2}} \right) = \frac{\sqrt{2}}{2}$$

# What Did Dr. Drone Say To the Guy Who Thought He Was a \$100 Bill?



Simplify the expression and find your answer in the adjacent answer column. Write the letter of the exercise in the box that contains the number of the answer. Assume that all variables represent nonnegative numbers.

G  $\sqrt{12} = 2\sqrt{3}$

I  $\sqrt{50} = 5\sqrt{2}$

O  $\sqrt{45} = 3\sqrt{5}$

E  $\sqrt{600} = \sqrt{100 \cdot 6} = 10\sqrt{6}$

S  $\sqrt{98} = \sqrt{2 \cdot 49} = 7\sqrt{2}$

U  $\sqrt{48} = \sqrt{16 \cdot 3} = 4\sqrt{3}$

O  $\sqrt{125} = \sqrt{5 \cdot 25} = 5\sqrt{5}$

W  $\sqrt{162} = \sqrt{81 \cdot 2} = 9\sqrt{2}$

9  $5\sqrt{2}$

2  $5\sqrt{5}$

35  $6\sqrt{2}$

33  $4\sqrt{3}$

14  $10\sqrt{6}$

20  $2\sqrt{3}$

5  $4\sqrt{5}$

23  $9\sqrt{2}$

36  $3\sqrt{5}$

19  $5\sqrt{3}$

4  $7\sqrt{2}$

A  $2\sqrt{18} = 6\sqrt{2}$

O  $8\sqrt{28} = 16\sqrt{7}$

G  $-3\sqrt{1000} = -30\sqrt{10}$

E  $5\sqrt{75} = 25\sqrt{3}$

D  $-4\sqrt{490} = -28\sqrt{10}$

L  $9\sqrt{72} = \sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 2} = 54\sqrt{2}$

H  $-7\sqrt{80} = -28\sqrt{5}$

O  $3\sqrt{144} = 36$

6 36

37  $-30\sqrt{3}$

18  $6\sqrt{2}$

21  $25\sqrt{3}$

16  $-28\sqrt{6}$

26  $54\sqrt{2}$

29  $16\sqrt{7}$

13  $-28\sqrt{5}$

24  $45\sqrt{3}$

11  $-30\sqrt{10}$

38  $-28\sqrt{10}$



Y  $\sqrt{16n^2} = 4n$

N  $\sqrt{20n^2} = 2n\sqrt{5}$

H  $\sqrt{49n^3} = 7n\sqrt{n}$

T  $\sqrt{63n^3} = 3n\sqrt{7n}$

O  $\sqrt{36n^4} = 6n^2$

L  $-\sqrt{200n^4} = -10n^2\sqrt{2}$

P  $\sqrt{900n^5} = 30n^2\sqrt{n}$

G  $\sqrt{60n^8} = 2n^4\sqrt{15}$

17  $7n\sqrt{n}$

7  $30n^2\sqrt{n}$

15  $3n^2\sqrt{5n}$

10  $2n\sqrt{5}$

25  $-10n^2\sqrt{2}$

12  $3n\sqrt{7n}$

27  $4n^4\sqrt{5}$

1  $2n^4\sqrt{15}$

31 4n

32  $6n^2$

30  $-10n^2\sqrt{2n}$

O  $\sqrt{25x^2y} = 5x\sqrt{y}$

D  $\sqrt{90x^4y^2} = 3x^2y\sqrt{10}$

G  $\sqrt{81x^3y^4} = 9xy^2\sqrt{x}$

I  $\sqrt{24x^2y^6} = 2xy^3\sqrt{6}$

C  $\sqrt{15xy^3} = y\sqrt{15xy}$

P  $3\sqrt{500x^8y^2} = 30x^4y\sqrt{5}$

N  $-2\sqrt{121x^3y} = -22x\sqrt{xy}$

H  $4\sqrt{44x^6y^5} = 8x^3y^2\sqrt{11y}$

8  $30x^4y\sqrt{5}$

34  $-22x^2\sqrt{xy}$

28  $3x^2y\sqrt{10}$

5  $8x^3y^2\sqrt{11y}$

22  $xy\sqrt{15}$

24  $2xy^3\sqrt{6}$

37  $5x\sqrt{y}$

19  $-22x\sqrt{xy}$

16  $y\sqrt{15xy}$

3  $30y^4\sqrt{5y}$

35  $9xy^2\sqrt{x}$

1 2 3 4 5 6 7 8 9 10 11  
GO SHOPPING

12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38  
THE CHANGE WILL DO YOU GOOD

Handwritten notes and calculations at the bottom of the page, including  $2\sqrt{60} = 2\sqrt{4 \cdot 15} = 4\sqrt{15}$  and  $2\sqrt{18} = 2\sqrt{9 \cdot 2} = 6\sqrt{2}$ .