

Kickoff

Complete the rubric for participation and pass it forward! Then take out your homework!

$$\textcircled{3} \quad \begin{array}{l} 4\sqrt{y} = 12 \\ \sqrt{y} = \frac{12}{4} \\ (\sqrt{y})^2 = \left(\frac{12}{4}\right)^2 \\ y = 9 \end{array}$$

$$\textcircled{6} \quad \begin{array}{l} (\sqrt{5+a})^2 = (-7)^2 \\ 5+a = 49 \\ -5 \quad -5 \\ \hline a = 44 \end{array}$$

Homework

Part I- Simplify each of the following.

1)  $\sqrt{80}$

$$\begin{array}{l} \sqrt{16 \cdot 5} \\ \boxed{4\sqrt{5}} \end{array}$$

2)  $\sqrt{200}$

3)  $\sqrt{36a^{12}}$

→ even exponents divide by 2

$$6a^6$$

4)  $\sqrt{81x^6}$

5)  $\sqrt{72x^5}$

$$\begin{array}{l} \sqrt{36x^4 \cdot 2x} \\ \boxed{6x^2\sqrt{2x}} \end{array}$$

6)  $\sqrt{160c^5}$

Part II- Perform the indicated operation.

7)  $2\sqrt{28} - 4\sqrt{63}$

$$\begin{array}{l} \sqrt{4 \cdot 7} \quad \sqrt{9 \cdot 7} \\ 2 \cdot 2\sqrt{7} \quad -4 \cdot 3\sqrt{7} \\ 4\sqrt{7} \quad -12\sqrt{7} \\ \boxed{-8\sqrt{7}} \end{array}$$

8)  $3\sqrt{18} - 2\sqrt{2}$

9)  $(-3\sqrt{18} + 3\sqrt{8}) - \sqrt{24}$

$$\begin{array}{l} \sqrt{9 \cdot 2} \quad \sqrt{4 \cdot 2} \quad \sqrt{4 \cdot 6} \\ -3 \cdot 3\sqrt{2} \quad 3 \cdot 2\sqrt{2} \quad -2\sqrt{6} \\ -9\sqrt{2} + 6\sqrt{2} - 2\sqrt{6} \\ \boxed{-3\sqrt{2} - 2\sqrt{6}} \end{array}$$

10)  $-2\sqrt{20} + 2\sqrt{18} - 2\sqrt{5}$

11)  $(3\sqrt{12})(2\sqrt{6})$   
 $\sqrt{36} \cdot \sqrt{2}$   
 $6 \cdot 6\sqrt{2}$   
 $36\sqrt{2}$

12)  $4\sqrt{3}(-2\sqrt{6})$

13)  $-\sqrt{10}(2\sqrt{2} + 5\sqrt{5})$   
 $-2\sqrt{20} - 5\sqrt{50}$   
 $\sqrt{4} \cdot \sqrt{5}$   
 $\sqrt{25} \cdot \sqrt{2}$   
 $-2 \cdot 2\sqrt{5}$   
 $-5 \cdot 5\sqrt{2}$   
 $-4\sqrt{5} - 25\sqrt{2}$

14)  $2\sqrt{5}(-\sqrt{2} + 3\sqrt{8})$

15)  $(1 + \sqrt{5})(3 - \sqrt{5})$   
 $3 - \sqrt{5} + 3\sqrt{5} - 5$   
 $2\sqrt{5} - 2$

16)  $(5 + \sqrt{6})(3 + \sqrt{6})$

17)  $48\sqrt{54} \div 12\sqrt{3}$   
 $\frac{48\sqrt{54}}{12\sqrt{3}}$   
 $4\sqrt{18}$   
 $\sqrt{9} \cdot \sqrt{2}$   
 $4 \cdot 3\sqrt{2} = 12\sqrt{2}$

18)  $\sqrt{24} \div \sqrt{6}$

19)  $\frac{2\sqrt{72} - 3\sqrt{32}}{\sqrt{2}}$   
 $\frac{2\sqrt{72}}{\sqrt{2}} - \frac{3\sqrt{32}}{\sqrt{2}}$   
 $\frac{2\sqrt{36}}{2} - \frac{3\sqrt{16}}{2}$   
 $2 \cdot 6 - 3 \cdot 4$   
 $12 - 12 = 0$

20)  $\frac{\sqrt{20} - \sqrt{5}}{\sqrt{5}}$

Part III- Rationalize the denominator

21)  $\frac{\sqrt{4}}{5\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{12}}{15} \rightarrow \sqrt{4} \cdot \sqrt{3} = \frac{2\sqrt{3}}{15}$

22)  $\frac{4}{\sqrt{5}}$   
 $\frac{5\sqrt{5}}{5 \cdot 3}$

$$23) \frac{\sqrt{7+1}(\sqrt{7+2})}{\sqrt{7-2}(\sqrt{7+2})} =$$

$$\frac{7+2\sqrt{7}+1\sqrt{7+2}}{7-4} = \frac{3}{3}$$

$$\frac{1\sqrt{7+3}}{\cancel{3}_1} = \sqrt{7+3}$$

$$24) \frac{2-\sqrt{3}}{2+\sqrt{3}}$$

Part IV- Solve and check for x.

$$25) 8 + \sqrt{2x-1} = 15$$

$$\begin{array}{r} -8 \\ \hline \sqrt{2x-1} = 7 \end{array}$$

$$2x-1 = 49$$

$$+1 \quad +1$$

$$\hline 2x = 50$$

$$\frac{2}{2} \quad \frac{50}{2}$$

$$\boxed{x=25}$$

$$26) 3\sqrt{x-2} = 21$$

ck:

$$8 + \sqrt{2x-1} = 15$$

$$8 + \sqrt{2(25)-1} = 15$$

$$8 + \sqrt{49} = 15$$

$$8 + 7 = 15$$

$$15 = 15 \checkmark$$