

Homework:

Simplifying Radicals



Directions: Simplify the radical in simplest radical form then combine like radicands.

Name: Key
Alg. 1 H - Oct. 26

Glue on page 83

Directions: Express each radical in simplest radical form.
(hint: find 2 factors of the number inside the radical. Make sure one of the factors is the largest perfect square.)

1.) $4\sqrt{75}$

$$4\sqrt{25 \cdot 3}$$

$$4 \cdot 5\sqrt{3}$$

$20\sqrt{3}$

2.) $6\sqrt{50x^7}$ *take half*

$$6\sqrt{25 \cdot 2 \cdot x^6 \cdot x^1}$$

$$6 \cdot 5 \cdot x^3 \sqrt{2x}$$

$30x^3\sqrt{2x}$

3.) $\sqrt{48x^3y^6}$ *take half*
 $\frac{6}{2} = 3$

$$y^3 \sqrt{16 \cdot 3 \cdot x^2 \cdot x^1}$$

take half
 $\frac{2}{2} = 1$

$$y \cdot 4x \sqrt{3x}$$

rewrite in descending order

$4xy\sqrt{3x}$

4.) $2a\sqrt{45a^4}$ *take half*

$$2a \cdot a \sqrt{9 \cdot 5}$$

$$2a^2 \cdot 3\sqrt{5}$$

$6a^2\sqrt{5}$

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(hint: Find 2 factors of the number inside the radical. Make sure one of the factors is the largest perfect square.)

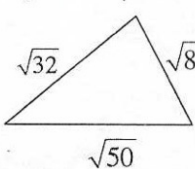
take half

$$5.) \frac{5}{2} \sqrt{20a^4} = \frac{5}{2} a^2 \sqrt{4 \cdot 5}$$

$$\frac{5}{2} \cdot a^2 \sqrt{5}$$

$$5a^2 \sqrt{5}$$

6.) Find the perimeter of the triangle below.



$$\sqrt{32} + \sqrt{8} + \sqrt{50} = \text{Perimeter}$$

$$\sqrt{16 \cdot 2} + \sqrt{4 \cdot 2} + \sqrt{25 \cdot 2}$$

$$4\sqrt{2} + 2\sqrt{2} + 5\sqrt{2}$$

* add coefficients

$$11\sqrt{2}$$

Directions: Simplify each expression by combining like terms.

(hint: you can only combine (add or subtract) if the radicals have the same radicand.)

carry down the $-\sqrt{3}$

$$7.) \frac{3}{2} \sqrt{12} + \sqrt{27} - \sqrt{3}$$

$$\frac{3}{2} \sqrt{4 \cdot 3} + \sqrt{9 \cdot 3} - 1\sqrt{3}$$

$$\frac{3}{2} \sqrt{3} + 3\sqrt{3} - 1\sqrt{3}$$

$$3\sqrt{3} + 3\sqrt{3} - 1\sqrt{3}$$

$$5\sqrt{3}$$

Directions: Simplify each expression by combining like terms.

$$8.) 3\sqrt{27} - \frac{1}{2}\sqrt{192} - \sqrt{300}$$

$$3\sqrt{9 \cdot 3} - \frac{1}{2}\sqrt{64 \cdot 3} - \sqrt{100 \cdot 3}$$

$$3 \cdot 3\sqrt{3} - \frac{1}{2} \cdot 8\sqrt{3} - 10\sqrt{3}$$

$$9.) 2\sqrt{50} + 3\sqrt{18} - \frac{3}{4}\sqrt{32}$$

$$2\sqrt{25 \cdot 2} + 3\sqrt{9 \cdot 2} - \frac{3}{4}\sqrt{16 \cdot 2}$$

$$2 \cdot 5\sqrt{2} + 3 \cdot 3\sqrt{2} - \frac{3}{4} \cdot 4\sqrt{2}$$

$$10\sqrt{2} + 9\sqrt{2} - 3\sqrt{2}$$

$$16\sqrt{2}$$

$$10.) \frac{2}{3}\sqrt{63} - 2\sqrt{28} + 5\sqrt{7}$$

$$\frac{2}{3}\sqrt{9 \cdot 7} - 2\sqrt{4 \cdot 7} + 5\sqrt{7}$$

$$\frac{2}{3} \cdot 3\sqrt{7} - 2 \cdot 2\sqrt{7} + 5\sqrt{7}$$

$$2\sqrt{7} - 4\sqrt{7} + 5\sqrt{7}$$

$$3\sqrt{7}$$

$$11.) 5\sqrt{18y^2} - 3y\sqrt{8}$$

$$5\sqrt{9 \cdot 2} - 3y\sqrt{4 \cdot 2}$$

$$5y \cdot 3\sqrt{2} - 3y \cdot 2\sqrt{2}$$

$$15y\sqrt{2} - 6y\sqrt{2}$$

$$9y\sqrt{2}$$