PC 11 **5.1 Part 2: Adding/Subtracting Radicals**

Name _____ Date: _____ Block_____

1. Are the following pairs like radicals? Explain.

a. $-3\sqrt{5}$ and $6\sqrt{20}$

b. $4\sqrt{2y}$ and $7x^2\sqrt{18xy^3}$

c. $7\sqrt[3]{2}$ and $7\sqrt{8}$

d. $2\sqrt[3]{24}$ and $\sqrt[3]{375}$

2. Simplify each expression.

a. $6\sqrt{2}+5\sqrt{2}$

b. $12\sqrt{5}-8\sqrt{5}$

c. $4\sqrt{18}+10\sqrt{2}$

d. $5\sqrt{75}+\sqrt{3}$

e. $5\sqrt[3]{54}+3\sqrt[3]{16}$

f. $\sqrt[4]{48}-3\sqrt[3]{375}$

g. $4\sqrt{45}+3\sqrt{80}-11\sqrt{20}$

h. $5\sqrt{18}-6\sqrt{8}-2\sqrt{32}$

i. $\frac{1}{2}\sqrt{80}+\frac{2}{3}\sqrt{45}-\frac{1}{2}\sqrt{20}$

3. Simplify each expression.

a. $\sqrt{12x}+\sqrt{27x}$

b. $\sqrt{5x^2}+\sqrt{20x^2}$

c. $\sqrt{25xy}+\sqrt{49xy}$

d. $\sqrt{20x^8y}-\sqrt{80x^8y}$

e. $\sqrt{25x^3}+\sqrt{64x^3}-x\sqrt{9x}$

f. $2y\sqrt{24x^2y}+\sqrt{54x^2y^3}$

g. $\frac{\sqrt{12}}{3x}+\sqrt{\frac{8}{x^2}}$

h. $\sqrt{\frac{99}{x^2}}+\sqrt{\frac{44}{9x^2}}$

i. $3x\sqrt{9x^2y}-\sqrt{27x^2y}+7\sqrt{25x^4y}$

4. Simplify each expression.

a. $\sqrt[3]{27}-5\sqrt[3]{8}$

b. $\sqrt[3]{-16}+\frac{1}{3}\sqrt[3]{432}$

c. $\sqrt[3]{7}+4\sqrt[3]{56}$

d. $\sqrt[3]{x^4}-\sqrt[3]{x^{10}}+x\sqrt[3]{8x}-x^2\sqrt[3]{27x^4}$

e. $\sqrt[3]{8x^7}-2x\sqrt[3]{27x^4}$

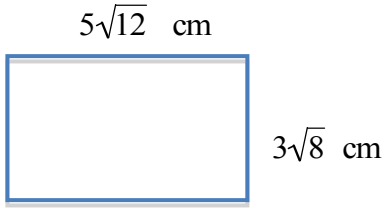
f. $\sqrt[4]{16x}-4\sqrt[4]{81x}$

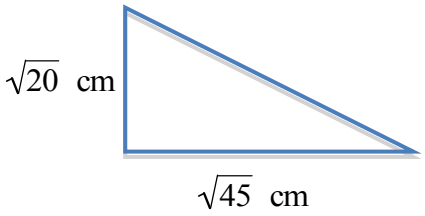
g. $3\sqrt[4]{5x^7}-x\sqrt[4]{80x^3}$

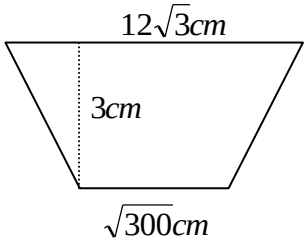
h. $x\sqrt[4]{16x}+3\sqrt[4]{x^5}-x\sqrt[4]{2401}$

i. $\frac{\sqrt[3]{x^4}}{5}-\frac{3x\sqrt[3]{x}}{10}$

5. Find the perimeter of each







Answer

1a. Yes b. No c. No. d. Yes 2a. $11\sqrt{2}$ b. $4\sqrt{5}$ c. $22\sqrt{2}$ d. $26\sqrt{3}$ e. $21\sqrt[3]{2}$ f. $2\sqrt[4]{3}-15\sqrt[3]{3}$
2g. $2\sqrt{5}$ h. $-5\sqrt{2}$ i. $3\sqrt{5}$ 3a. $5\sqrt{3x}$ b. $3x\sqrt{5}$ c. $12\sqrt{xy}$ d. $-2x^4\sqrt{5y}$ e. $10x\sqrt{x}$ f. $7xy\sqrt{6y}$
3g. $\frac{2\sqrt{3}+6\sqrt{2}}{3x}$ h. $\frac{11\sqrt{11}}{3x}$ i. $44x^2\sqrt{y}-3x\sqrt{3y}$ 4a. -7 b. 0 c. $9\sqrt[3]{7}$ d. $3x\sqrt[3]{x}-4x^3\sqrt[3]{x}$
4e. $-4x^2\sqrt[3]{x}$ f. $-10\sqrt[4]{x}$ g. $x\sqrt[4]{5x^3}$ h. $5x\sqrt[4]{x}-7x$ i. $\frac{-x\sqrt[3]{x}}{10}$ 5a. P = $20\sqrt{3}+12\sqrt{2}$ cm
b. P = $5\sqrt{5}+\sqrt{65}$ cm c. $26\sqrt{3}$ cm