CP Algebra 1

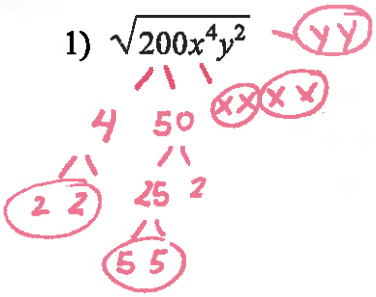
Name Teacher Key

Final Exam Review - Radicals

Date _____

Simplifying single radical expressions.

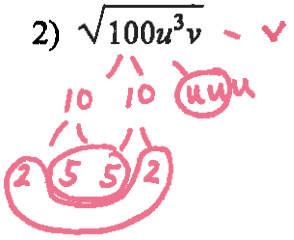
1) $\sqrt{200x^4y^2}$



$2 \cdot 5 \cdot x \cdot x \cdot y \sqrt{2}$

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

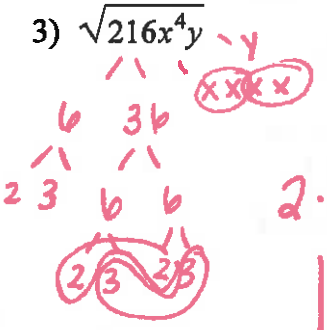
2) $\sqrt{100u^3v}$



$2 \cdot 5 \cdot u \sqrt{u \cdot v}$

$10u\sqrt{uv}$

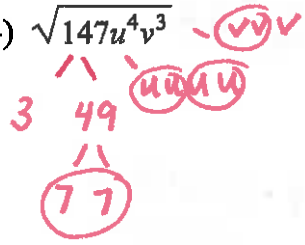
3) $\sqrt{216x^4y}$



$2 \cdot 3 \cdot x \cdot x \sqrt{2 \cdot 3 \cdot y}$

$6x^2\sqrt{6y}$

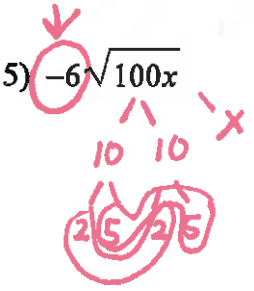
4) $\sqrt{147u^4v^3}$



$7 \cdot u \cdot u \cdot v \sqrt{3 \cdot v}$

$7u^2v\sqrt{3v}$

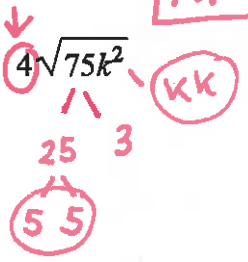
5) $-6\sqrt{100x}$



$-6 \cdot 2 \cdot 5 \sqrt{x}$

$-60\sqrt{x}$

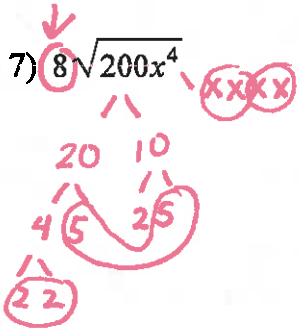
6) $4\sqrt{75k^2}$



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

$20k\sqrt{3}$

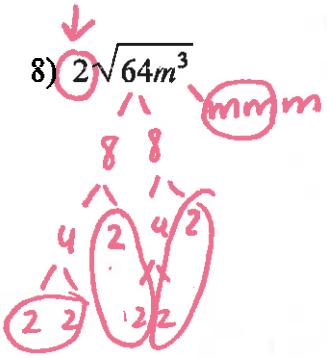
7) $8\sqrt{200x^4}$



$8 \cdot 2 \cdot 5 \cdot x \cdot x \sqrt{2}$

$80x^2\sqrt{2}$

8) $2\sqrt{64m^3}$



$2 \cdot 2 \cdot 2 \cdot 2 \cdot m \sqrt{m}$

$16m\sqrt{m}$

Multiple and simplify.

9) $-2\sqrt{6n} \cdot \sqrt{6n}$

$(-2)\sqrt{36n^2}$; $36 = 6 \cdot 6$; $n^2 = n \cdot n$; $6 = 2 \cdot 3$

$-2 \cdot 2 \cdot 3 \cdot n = \boxed{-12n}$

10) $\sqrt{5v} \cdot \sqrt{5v^2}$

$\sqrt{25v^3}$; $25 = 5 \cdot 5$; $v^3 = v \cdot v \cdot v$

$\boxed{5v\sqrt{v}}$

11) $\sqrt{10x^3} \cdot 4\sqrt{6x^3}$

$(4)\sqrt{60x^6}$; $60 = 6 \cdot 10$; $6 = 2 \cdot 3$; $10 = 2 \cdot 5$; $x^6 = x \cdot x \cdot x \cdot x \cdot x \cdot x$

$4 \cdot 2 \cdot x \cdot x \cdot x \sqrt{3 \cdot 5}$

$\boxed{8x^3\sqrt{15}}$

12) $\sqrt{5b} \cdot 4\sqrt{5b}$

$(4)\sqrt{25b^2}$; $25 = 5 \cdot 5$; $b^2 = b \cdot b$

$\boxed{20b}$

Divide and simplify.

13) $\frac{3}{3\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{3\sqrt{5}}{3\sqrt{25}} = \frac{3\sqrt{5}}{15} \overset{\div 3}{\div 3}$; $25 = 5 \cdot 5$

$= \boxed{\frac{\sqrt{5}}{5}}$

14) $\frac{\sqrt{2}}{3\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{6}}{3\sqrt{9}} \overset{\div 3}{\div 3} = \boxed{\frac{\sqrt{6}}{9}}$; $9 = 3 \cdot 3$

15) $\frac{2\sqrt{4n^4}}{\sqrt{3n^2}} = 2\sqrt{\frac{4n^{4/2}}{3n^2}}$

$= 2\sqrt{\frac{4n^2}{3}}$

$= 2\frac{\sqrt{4n^2}}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$; $\boxed{\frac{4n\sqrt{3}}{3}}$

$= (2)\frac{\sqrt{12n^2}}{\sqrt{9}} \overset{(n)}{(n)} \overset{(3)}{(3)}$

16) $\frac{5\sqrt{2xy^3}}{\sqrt{3x^3y^3}} = 5\sqrt{\frac{2xy^3}{3x^3y^3}} = 5\sqrt{\frac{2}{3x^2}}$

$= \frac{5\sqrt{2}}{\sqrt{3x^2}} = \frac{5\sqrt{2}}{x\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$; $x^2 = x \cdot x$

$\frac{5\sqrt{6}}{(x)\sqrt{9}} = \boxed{\frac{5\sqrt{6}}{3x}}$; $9 = 3 \cdot 3$