Algebra 2 Bellwork Friday, May 1, 2015 1st hour

1. Simplify. Use Absolute Value symbols as needed.

$\sqrt[4]{18a^3b^7c^{13}} \cdot \sqrt[4]{9a^6b^{19}c^7}$

2. Rationalize the denominator.

a) $\dfrac{48w^2y^7}{\sqrt[6]{4w^9x^6y^{13}}}$

b) $\dfrac{\sqrt{10}+4}{\sqrt{5}-\sqrt{2}}$

3. Simplify. Assume all variables are positive. Give fractional answers in reduced form.

$\left(\dfrac{16m^4}{n^{\frac{4}{3}}}\right)^{\frac{-3}{2}}$

4. solve each radical equation.

a) $(5x+16)^{\frac{1}{4}} = (x+2)^{\frac{1}{2}}$

b) $\sqrt{12-x}+6 = x$

c) $(2x+1)^{\frac{3}{5}}+4 = 31$

Algebra 2 Bellwork Friday, May 1, 2015 1st hour ANSWERS

1. Simplify. Use Absolute Value symbols as needed.

$\sqrt[4]{18a^3b^7c^{13}} \cdot \sqrt[4]{9a^6b^{19}c^7} = \sqrt[4]{3^4 \cdot 2 a^9 b^{26} c^{20}} = 3a^2 b^6 c^5 \sqrt[4]{2ab^2}$

$18 = 9 \cdot 2 = 3 \cdot 3 \cdot 2$ $\quad 9 = 3 \cdot 3$

2. Rationalize the denominator.

a) $\dfrac{48w^2y^7}{\sqrt[6]{4w^9x^6y^{13}}} \cdot \dfrac{\sqrt[6]{2^4w^3y^5}}{\sqrt[6]{2^4w^3y^5}}$ $\quad 4 = 2^2$

$= \dfrac{48w^2y^7\sqrt[6]{2^4w^3y^5}}{\sqrt[6]{2^6w^{12}x^6y^{18}}} = \dfrac{48w^2y^7\sqrt[6]{2^4w^3y^5}}{2w^2xy^3}$

$= \dfrac{24y^4\sqrt[6]{2^4w^3y^5}}{x}$

b) $\dfrac{\sqrt{10}+4}{\sqrt{5}-\sqrt{2}} \cdot \dfrac{\sqrt{5}+\sqrt{2}}{\sqrt{5}+\sqrt{2}} = \dfrac{9\sqrt{2}+6\sqrt{5}}{3}$ $\quad 5-2$

$= 3\sqrt{2}+2\sqrt{5}$

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

	$\sqrt{50}=$	$\sqrt{20}=$
$\sqrt{10}$	$5\sqrt{2}$	$2\sqrt{5}$
$+4$	$4\sqrt{5}$	$4\sqrt{2}$

3. Simplify. Assume all variables are positive. Give fractional answers in reduced form.

$\left(\dfrac{16m^4}{n^{\frac{4}{3}}}\right)^{-\frac{3}{2}} = \left(\dfrac{n^{4/3}}{16m^4}\right)^{3/2} = \dfrac{n^{4/3 \cdot 3/2}}{16^{3/2}m^{4 \cdot 3/2}} = \dfrac{n^2}{64m^6}$

4. solve each radical equation.

a) $\left((5x+16)^{\frac{1}{4}}\right)^4 = \left((x+2)^{\frac{1}{2}}\right)^4$

$5x+16 = (x+2)^2$

$5x+16 = x^2+4x+4$

$0 = x^2-x-12$

$0 = (x-4)(x+3)$

$x = 4, -3$ $\quad x=4$

b) $\sqrt{12-x}+6 = x$ $\quad -6 \quad -6$

$\left(\sqrt{12-x}\right)^2 = (x-6)^2$

$12-x = x^2-12x+36$

$0 = x^2-11x+24$

$0 = (x-3)(x-8)$

$x = 3, 8$ $\quad x=8$

c) $(2x+1)^{\frac{3}{5}}+4 = 31-4$ $\quad -4$

$\left((2x+1)^{3/5}\right)^{5/3} = (27)^{5/3}$

$2x+1 = 243$ $\quad -1 \quad -1$

$\dfrac{2x}{2} = \dfrac{242}{2}$

$x = 121$