Bellwork Algebra 2 Wednesday, May 28, 2014

1. Simplify each. Use absolute value symbols when necessary.

a) $\sqrt{54m^{18}n^{12}p^{23}}$

$\sqrt{54}\ \sqrt{m^{18}}\ \sqrt{n^{12}}\ \sqrt{p^{23}}$

$\sqrt{9\cdot 6}$ $\quad$ $p^{22}p^{1}$

$3\sqrt{6}$ $\quad$ m^9 $\quad$ n^6 $\quad$ $p^{11}\sqrt{p}$

$3|m^9|n^6|p^{11}|\sqrt{6p}$

b) $\sqrt[5]{g^{14}h^{27}j^{43}}$

$g^2h^5j^8\sqrt[5]{g^4h^2j^3}$

2. Simplify.

$\sqrt{32} + \sqrt{108} - \sqrt{98} + \sqrt{75}$

$16\cdot 2$ $\quad$ $36\cdot 3$ $\quad$ $49\cdot 2$ $\quad$ $25\cdot 3$

$4\sqrt{2} + 6\sqrt{3} - 7\sqrt{2} + 5\sqrt{3}$

$-3\sqrt{2} + 11\sqrt{3}$

3. Rationalize each denominator. Simplify answer.

a) $\dfrac{18}{\sqrt[3]{2a^2b^7}} \cdot \dfrac{\sqrt[3]{4ab^2}}{\sqrt[3]{2^2a^1b^2}}$

$\sqrt[3]{2^3a^3b^9}$

$= \dfrac{9\cancel{2}\cdot\sqrt[3]{4ab^2}}{\cancel{2}ab^3}$

b) $\dfrac{15}{\sqrt[4]{3x^5y^{19}}} \cdot \dfrac{\sqrt[4]{27x^3y}}{\sqrt[4]{27x^3y}} = \dfrac{15\sqrt[4]{27x^3y}}{3x^2y^5}$

$\sqrt[4]{3^4x^8y^{20}}$

c) $\dfrac{7}{5-\sqrt{11}} \cdot \dfrac{5+\sqrt{11}}{5+\sqrt{11}} = \dfrac{7(5+\sqrt{11})}{25-11} = \dfrac{7(5+\sqrt{11})}{14} = \dfrac{5+\sqrt{11}}{2}$

4. Solve this radical equation:

$\sqrt{5x+21} - 3 = x$ $\quad -4$

$(\sqrt{5x+21})^2 = (x+3)^2$

$5x+21 = x^2+6x+9$

$0 = x^2+x-12$

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

$x = -4, 3$ ✓