M121 Answers to ticket Time P.1-P.3

Ticket #1

a) $\frac{20x^{24}}{10x^{6}}$

$2x^{18}$

b) $\left(\frac{-30a^{14}b^{8}}{10a^{17}b^{-2}}\right)^{3}$

$\left(\frac{-3b^{10}}{a^{3}}\right)^{3}$ $\quad \frac{-3^{3}b^{30}}{a^{9}}$ $\quad \frac{-27b^{30}}{a^{9}}$

Ticket #2

a) $\sqrt[5]{\frac{-1}{32}}$

$\frac{\sqrt[5]{-1}}{\sqrt[5]{32}} = \frac{-1}{2}$

b) $8^{\frac{2}{3}}$

$\left(8^{\frac{1}{3}}\right)^{2}$

$2^{2} = 4$

c) $32^{-\frac{4}{5}}$

$\frac{1}{32^{\frac{4}{5}}} = \frac{1}{\left(32^{\frac{1}{5}}\right)^{4}}$

$\frac{1}{2^{4}} = \frac{1}{16}$

d) $3x^{\frac{2}{3}} \cdot 4x^{\frac{3}{4}}$

$12x^{\frac{2}{3}+\frac{3}{4}}$

$\frac{2}{3}\frac{8}{12} + \frac{3}{4}\frac{9}{12}$

$12x^{\frac{17}{12}}$

or $12x^{1}x^{\frac{5}{12}}$

or $12x\sqrt[12]{x^{5}}$

Ticket #3

a) $\frac{2}{\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}} = \frac{2\sqrt{10}}{\sqrt{100}} = \frac{2\sqrt{10}}{10} = \frac{1\sqrt{10}}{5}$ or $\frac{\sqrt{10}}{5}$

b) $\frac{11}{\sqrt{7}-\sqrt{3}}$ Mult by Conjugate $\left(\sqrt{7}+\sqrt{3}\right)$

$\frac{\left(\sqrt{7}+\sqrt{3}\right)}{\sqrt{49}+\sqrt{21}-\sqrt{21}-\sqrt{9}}$

$\frac{11\sqrt{7}+11\sqrt{3}}{7-3} = \frac{11\sqrt{7}+11\sqrt{3}}{4}$

Ticket #4

a) $6-5(8-(2y-4))$

$6-5(8-2y+4)$

$6-5(12-2y)$

$6-60+10y$

$\boxed{-54+10y}$

b) $\frac{1}{2}(2y)+((-7x)+7x)$

$y+0$

$\boxed{y}$

Ticket #5

a) 3.92×10^{-4}

$\boxed{.000392}$

b) $(-3xy)^0(x^2y)^{-3}$

$1 \cdot x^{-6}y^{-3}$

$\boxed{\frac{1}{x^6y^3}}$

Ticket #6

a) $\sqrt[4]{32x^9y^5}$

$\sqrt[4]{16} \cdot \sqrt[4]{2x^9y^5}$

$\boxed{2x^2|y|\sqrt[4]{2xy}}$

absolute value

b) $\sqrt[5]{\frac{96x^7}{3x}}$ divide First

$\sqrt[5]{32x^6}$ or $32^{\frac{1}{5}}x^{\frac{6}{5}}$

$2x\sqrt[5]{x}$ or $2x \cdot x^{\frac{1}{5}}$

Ticket #7

a) $\sqrt[3]{16} + 2\sqrt[3]{54}$

$\sqrt[3]{8}\cdot\sqrt[3]{2} + 2\sqrt[3]{27}\cdot\sqrt[3]{2}$

$2\sqrt[3]{2} + 2\cdot 3\sqrt[3]{2}$

$2\sqrt[3]{2} + 6\sqrt[3]{2}$

like items

$\boxed{8\sqrt[3]{2}}$

b) $-\sqrt{2} + 3\sqrt{8}$

$-\sqrt{2} + 3\sqrt{4}\sqrt{2}$

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

$-\sqrt{2} + 6\sqrt{2}$ like terms

think of as $-1\sqrt{2} + 6\sqrt{2}$

$\boxed{5\sqrt{2}}$

Ticket #8

a) $\left(\dfrac{x^{\frac{1}{2}}\, y^{-\frac{3}{4}}}{y^{-\frac{3}{4}}}\right)^{-4}$

multiply

$\dfrac{x^{-2}\, y^{7}}{y^{5}} = \dfrac{y^7}{x^2 y^5} = \boxed{\dfrac{y^2}{x^2}}$

← don't call me Hollee

b) $\sqrt{\dfrac{500x^3}{10x^{-1}}} = \sqrt{50x^3x^1} = \sqrt{50x^4}$

$\sqrt{25}\sqrt{2x^4}$

$\boxed{5x^2\sqrt{2}}$

no Absolute value needed because squared