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/m143.sp08/handouts143/q201/q201_143

These are alleged answers. For each error herein, you get extra-credit points for being the first to report it by e-mail.

These problems make use of famous laws of exponents (section 1.2 in our text):

$$(a) \quad (ab)^n = a^n b^n \text{ and } \left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$

$$(b) \quad a^{-n} = \frac{1}{a^n} \text{ and } \frac{a^{-m}b}{c} = \frac{b}{a^m c}$$

$$(c) \quad A^m A^n = A^{m+n} \text{ with } (B^p)^q = B^{pq}$$

1 Here's one possible solution path:

$$\begin{aligned} (2x^4y^{-4/5})^3 (8y^2)^{2/3} &= (2^3(x^4)^3(y^{-4/5})^3)(8^{2/3}(y^2)^{2/3}) \\ &= (2^3x^{12}y^{-12/5})(8^{2/3}y^{4/3}) \\ &= (8x^{12}y^{-12/5})(4y^{4/3}) \\ &= 32x^{12}y^{-16/15} = \frac{32x^{12}}{y^{16/15}} \end{aligned}$$

This is problem 1.2: 63.

2 Here's one possible solution path:

$$\begin{aligned} \frac{(9st)^{3/2}}{(27s^3t^{-4})^{2/3}} &= \frac{9^{3/2}s^{3/2}t^{3/2}}{27^{2/3}(s^3)^{2/3}(t^{-4})^{2/3}} \\ &= \frac{27s^{3/2}t^{3/2}}{9s^2t^{-8/3}} \\ &= \frac{3t^{25/6}}{s^{1/2}} \end{aligned}$$

This is problem 1.2: 69.