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

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

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

1 Here’s one possible solution path:

\[
\left(2x^4y^{-4/5}\right)^3 \left(8y^2\right)^{2/3} = \left(2^3(x^4)^3(y^{-4/5})^3\right) \left(8^{2/3}(y^2)^{2/3}\right) \\
= \left(2^3 x^{12} y^{-12/5}\right) \left(8^{2/3} y^{4/3}\right) \\
= \left(8 x^{12} y^{-12/5}\right) \left(4 y^{4/3}\right) \\
= 32 x^{12} y^{-16/15} = \frac{32x^{12}}{y^{16/15}}
\]

This is problem 1.2: 63.

2 Here’s one possible solution path:

\[
\frac{\left(9st\right)^{3/2}}{\left(27s^3 t^{-4}\right)^{2/3}} = \frac{9^{3/2} s^{3/2} t^{3/2}}{27^{2/3} (s^3)^{2/3} (t^{-4})^{2/3}} \\
= \frac{27 s^{3/2} t^{3/2}}{9 s^2 t^{-8/3}} \\
= \frac{3t^{25/6}}{s^{1/2}}
\]

This is problem 1.2: 69.