

Spring, 1999  
Peterson

MATH 105.

Homework 12.

**DUE: Friday, April 23, 1999.**

Assume  $a > 0$ ,  $b > 0$ , and  $c > 0$ . Simplify the following expressions. Final answers should not involve negative exponents. Fractions and radicals need to be in reduced form.

$$(1) \sqrt{8a^3b^{-5}c} \cdot \sqrt{18a^7bc^{-3}}.$$

$$(2) \frac{\sqrt{50a^3bc}}{\sqrt{18a^5b^{-1}c^{-3}}}.$$

$$(3) \sqrt[3]{a^{-2}b^5c^{-2}} \cdot \sqrt[3]{a^5b^{-2}c^{-1}}.$$

$$(4) \frac{\sqrt[4]{48a^5bc^{-6}}}{\sqrt[4]{3ab^{-7}c^6}}.$$

$$(5) a^{\frac{3}{5}}b^{\frac{1}{2}}c^{\frac{2}{3}}a^{-\frac{8}{5}}b^{\frac{3}{2}}c^{-\frac{5}{3}}.$$

$$(6) \left(a^{\frac{1}{3}}b^{\frac{1}{4}}c^{\frac{2}{3}}\right)^2 \left(a^{\frac{7}{3}}b^{-\frac{3}{2}}c^{\frac{5}{3}}\right).$$

$$(7) \frac{a^{\frac{1}{3}}b^{-\frac{1}{4}}c^{\frac{5}{2}}}{a^{\frac{4}{3}}b^{\frac{3}{4}}c^{\frac{1}{2}}}.$$

$$(8) (a^2b^{-1}c^8)^{\frac{1}{4}}(a^{\frac{3}{2}}b^{\frac{9}{4}}c^{-6})^{-\frac{1}{3}}.$$

$$(9) \frac{a^{\frac{1}{2}}b^{\frac{3}{5}}c^{\frac{1}{3}}}{a^2b^{\frac{6}{5}}c^{-\frac{1}{3}}} \cdot \frac{ab^{-\frac{1}{5}}c^{\frac{5}{3}}}{a^{\frac{3}{2}}b^{\frac{1}{5}}c^{\frac{1}{3}}}.$$