

# Section 1.4 – Fractional Exponents

## Problem Set 1

Rewrite the following expressions using the radical symbol,  $\sqrt{\quad}$ , instead of the fractional exponent.

1.  $7^{\frac{1}{3}}$

2.  $8^{\frac{3}{5}}$

3.  $(-4)^{\frac{8}{3}}$

4.  $z^{\frac{4}{11}}$

Rewrite the following expressions using exponents.

5.  $\sqrt[3]{12}$

6.  $\sqrt{7}$

7.  $\sqrt[7]{(xy)^9}$

8.  $\sqrt[7]{4^5}$

Simplify the following expressions.

9.  $\frac{n^{\frac{20}{7}}}{n^5}$

10.  $(x^8 y^7)^{\frac{1}{4}}$

11.  $\frac{c^{47}}{c^{\frac{2}{5}}}$

12.  $\frac{\sqrt[8]{t^2 s^3}}{\sqrt[7]{t}}$

13.  $\sqrt[7]{x^3}$

14.  $z^{\frac{3}{5}} \cdot z^{\frac{1}{5}}$

15.  $\frac{a^{\frac{4}{9}}}{a^{\frac{2}{9}}}$

16.  $\frac{\left(m^3 n^{\frac{7}{2}}\right)^4}{mn^{\frac{5}{2}}}$

17.  $e^{\frac{4}{9}} \cdot e^{\frac{7}{3}} + f^{\frac{7}{12}} \cdot f^{\frac{-2}{3}}$

18.  $\sqrt[10]{b^4 c^7} \cdot \sqrt[5]{b^2 c^2}$

19.  $\frac{25u^3 v^{\frac{4}{3}}}{5u^{\frac{7}{9}} v^{\frac{7}{6}}}$

20.  $\sqrt[10]{r^2 s^6} \cdot \sqrt{r^2 s^5}$