

Name: _____

MATH 101

Spring 2024

HW 4: Due 02/05

*“Now we’re going to do the most human thing of all: attempt something
futile with a ton of unearned confidence and fail spectacularly!”*

— Michael, The Good Place

Problem 1. (10pts) Showing all your work, compute the following “without a calculator”:

(a) $\sqrt[3]{64}$

(b) $36^{-3/2}$

(c) $\left(\frac{1}{8}\right)^{-1/3}$

Problem 2. (10pts) Simplify the following:

(a) $\sqrt{x^{10}y^4}$

(b) $\sqrt[3]{x^3y^5z^{12}}$

(c) $\sqrt{\sqrt[3]{y^6}}$

Problem 3. (10pts) Simplify the following:

(a) $x^2y\sqrt{x^8y^5}$

(b) $\frac{x^2y}{\sqrt[3]{xy^6}}$

(c) $\frac{\sqrt{x^2y}}{\sqrt[3]{x^3y^5}}$

Problem 4. (10pts) Simplify the following:

$$\left(\frac{\sqrt{x^8 y^6}}{x^{-3} \sqrt{xy}} \right)^{-3/2}$$