Name: _____

MATH 101
Fall 2022
HW 2: Due 09/19

"I do not have time for this; I do not have time for you!"
–Anna Delvey, Inventing Anna

Problem 1. (10pt) Showing all your work, find the exact value of the following–being sure to simplify as much as possible:

(a) $(-2)^3 \cdot 3^{-2}$

(b) $\left(-\frac{9}{5}\right)^{-2}$

(c) $\frac{(2^3)^2 \cdot 5^0}{4^3 \cdot 3^{-1}}$

Problem 2. (10pt) Showing all your work, find the exact value of the following–being sure to simplify as much as possible:

(a) $\sqrt{300}$

(b) $\sqrt{2^5 \cdot 3^2 \cdot 5^3}$

(c) $\sqrt[3]{2^4 \cdot 3^5 \cdot 5^6}$

Problem 3. (10pt) Showing all your work, simplify the following as much as possible—being your answer involves no negative powers:

(a) $(x^0y^3)^2 \cdot (x^4y^{-5})^{-2}$

(b) $\dfrac{x^4y^0z^6}{(xz^2)^{-3}}$

(c) $\left(\dfrac{x^6y^{-3}z}{(xz^2)^3y^{-5}}\right)^{-2}$

Problem 4. (10pt) Showing all your work, simplify the following as much as possible—being your answer involves no negative powers and all variables appear only once:

(a) $xy\sqrt{x^4y^5}$

(b) $\dfrac{\sqrt{x^{10}y^5}}{\sqrt{x^2y^3}}$

(c) $\sqrt[3]{x^{12}y^3z^{11}}$

Problem 5. (10pt) Showing all your work, simplify the following as much as possible—being your answer involves no negative powers and all variables appear only once:

(a) $(y\sqrt{x})^4 \cdot (x^{-3}y^2)^{-1})$

(b) $(x\sqrt{y}) \cdot (y\sqrt[3]{x})$

(c) $\left(\dfrac{x\sqrt{y^5}}{y^2\sqrt{x^6}}\right)^{-1/2}$

Problem 6. (10pt) Showing all your work, simplify the following as much as possible—being your answer involves no negative powers and all variables appear only once:

(a) $\sqrt[3]{x^3y^2} \cdot \sqrt{xy^3}$

(b) $\left(\dfrac{x^5}{\sqrt{x}}\right)^{2/3}$

(c) $xy\left(\sqrt{\dfrac{x^2}{y^3}}\right)^{-4}$