GSA Algebra II: Exponent + Radical practice Name: _____

NO CALCULATOR!

Write the radical expression and simplify:

"This radical expression is the sum of two terms.

The first term is a radical with an index of 3 and

The radicand is 2 with an exponent of 9.

The second term is a radical raised to a power of 3,

With a radicand that is a perfect cube less than 100 but

Greater than 30, and the index is 3.

Provide the expression in simplest form."

Write as a single power of x:

$\sqrt[4]{\sqrt[3]{x}} \cdot \sqrt{\sqrt[5]{x}}$

Convert to exponent form:

$\sqrt[3]{4^5} =$ $\left(\sqrt{x}\right)^3 =$

$\sqrt[5]{8} =$ $\sqrt[4]{23^9} =$

$\left(\sqrt[8]{15}\right)^3 =$ $\sqrt[3]{10^7} =$

Simplify, reduce if possible, and write as a radical:

$\frac{5^{7/6}}{5^{5/6}} =$ $\left(9^{\frac{3}{5}}\right)^{\frac{2}{3}} =$ $\frac{4^{1/2}}{4^{1/4}} =$

Convert each to radical form and then evaluate mentally, if possible:

$(-16)^{\frac{1}{4}} =$ $(16)^{-1/4} =$ $(-32)^{\frac{1}{5}} =$

$16^{\frac{3}{2}} =$ $(-125)^{\frac{1}{3}} =$ $(27)^{-\frac{2}{3}} =$

$(-32)^{-\frac{1}{5}} =$ $(243)^{-\frac{1}{5}} =$ $(-64)^{-4/3} =$

$(25)^{\frac{3}{2}} =$ $(-100)^{\frac{3}{2}} =$ $(64)^{-\frac{2}{3}} =$

$(8)^{-\frac{2}{3}} =$ $(16)^{-7/4} =$

Write as a single radical (Hint: write in exponent form, then convert back to radicals):

$\sqrt[3]{5} \cdot \sqrt{2}$ $\frac{\sqrt[4]{(x+y)^3}}{\sqrt{x+y}}$

$\sqrt[4]{7} \cdot \sqrt{3}$

$\frac{\sqrt[4]{(a-b)^5}}{a-b}$

$x^{-\frac{2}{3}} y^{\frac{1}{2}} z^{\frac{5}{6}}$

$\frac{a^{\frac{1}{2}} b^{\frac{3}{8}}}{a^{\frac{1}{4}} b^{\frac{1}{8}}}$

$a^{\frac{1}{2}} b^{-\frac{1}{2}} c^{\frac{5}{6}}$