Algebra 2 Test 2022

Practice Test
Name: John Sidanycz

#1 Points possible: 2. Total attempts: 1

Find the following radicals.

b - $\sqrt{-81}$	a. 9
c - $-\sqrt{81}$	b. Not a real number
b - $-\sqrt{-81}$	c. -9
a - $\sqrt{81}$	

#2 Points possible: 1. Total attempts: 1

Find the following root. If the root does not exist as a real number, write "DNE".

$-\sqrt[3]{27} =$ -3

#3 Points possible: 1. Total attempts: 1

Find the following root.

$-\sqrt[4]{16} =$ -2

#4 Points possible: 2. Total attempts: 1

Assume all variables are positive, and find the following root:

$\sqrt[3]{a^3b^6} =$ ab^2

#5 Points possible: 3. Total attempts: 1

Assume all variables are positive, and find the following root:

$\sqrt[3]{-64a^{12}b^6} =$ $-4a^3b^2$

#6 Points possible: 1. Total attempts: 1

Convert the following radical to an expression with rational exponents and simplify if possible. Assume all variables are positive numbers.

$\sqrt[8]{y^5} =$ $y^{5/8}$

#7 Points possible: 1. Total attempts: 1

Use the definition of rational exponents to write each of the following with the appropriate root. Then simplify:

$4^{\frac{1}{2}} =$ $\sqrt{4} = 2$

#8 Points possible: 1. Total attempts: 1

Use the definition of rational exponents to write each of the following with the appropriate root. Then simplify:

$(-125)^{\frac{1}{3}} =$ $\sqrt[3]{-125} = -5$

#9 Points possible: 1. Total attempts: 1

Use the definition of rational exponents to write each of the following with the appropriate root. Then simplify:

$\left(\frac{25}{4}\right)^{\frac{1}{2}} =$ $\sqrt{\frac{25}{4}} = \frac{5}{2}$

#10 Points possible: 1. Total attempts: 1

Use the definition of rational exponents to write each of the following with the appropriate root. Then simplify:

$\left(\frac{625}{16}\right)^{\frac{1}{4}} =$ $\sqrt[4]{\frac{625}{16}} = \frac{5}{2}$

#11 Points possible: 2. Total attempts: 1

Use the definition of rational exponents to write each of the following with the appropriate root. Then simplify:

$64^{\frac{4}{3}} =$ $\left(\sqrt[3]{64}\right)^4 = 4^4 = 256$

#12 Points possible: 2. Total attempts: 1

Simplify the expression. Remember, negative exponents give reciprocals.

$625^{-\frac{3}{4}} =$ $1/125$

$(625)^{3/4} = \left(\sqrt[4]{625}\right)^3 = (5)^3 = 125$

#13 Points possible: 2. Total attempts: 1

Simplify the expression. Remember, negative exponents give reciprocals.

$\left(\frac{64}{49}\right)^{-\frac{1}{2}} =$ 7/8

$\left(\frac{49}{64}\right)^{1/2} = \sqrt{\frac{49}{64}}$

#14 Points possible: 2. Total attempts: 1

Simplify the expression. Remember, negative exponents give reciprocals.

$\left(\frac{8}{27}\right)^{-\frac{2}{3}} =$ 9/4

$\left(\frac{27}{8}\right)^{2/3} = \left(\sqrt[3]{\frac{27}{8}}\right)^2 = \left(\frac{3}{2}\right)^2 = \frac{9}{4}$

#15 Points possible: 2. Total attempts: 1

Use the properties of exponents to simplify the following as much as possible. Assume all bases are positive.

$x^{\frac{5}{6}} \cdot x^{\frac{1}{6}} =$ $X^{6/6} = X^1$

#16 Points possible: 2. Total attempts: 1

Use the properties of exponents to simplify the following as much as possible. Assume all bases are positive.

$\frac{x^{\frac{1}{6}}}{x^{\frac{5}{6}}} =$ $X^{-4/6} = X^{-2/3} = 1/X^{2/3}$

#17 Points possible: 3. Total attempts: 1

Use the properties of exponents to simplify the following as much as possible. Assume all bases are positive.

$\left(x^{\frac{2}{5}} y^{\frac{2}{5}} z^{\frac{2}{3}}\right)^{\frac{5}{6}} =$ $X^{10/30}\ y^{10/30}\ z^{10/18} = X^{1/3}\ y^{1/3}\ z^{5/6}$

#18 Points possible: 2. Total attempts: 1

Use the product property for radicals to simplify the following radical expressions as much as possible. Assume all variables represent positive numbers. Use sqrt(x) for $\sqrt{x}$ and root(x)(y) for $\sqrt[x]{y}$.

$\sqrt{18} =$ $\sqrt{9}\sqrt{2} = 3\sqrt{2}$

#19 Points possible: 2. Total attempts: 1

Use the product property for radicals to simplify the following radical expressions as much as possible. Assume all variables represent positive numbers. ~~Use sqrt(x) for $\sqrt{x}$ and root(x)(y) for $\sqrt[y]{x}$.~~

$\sqrt{720} =$ $\sqrt{144}\sqrt{5} = 12\sqrt{5}$

#20 Points possible: 2. Total attempts: 1

Use the product property for radicals to simplify the following radical expressions as much as possible. Assume all variables represent positive numbers. ~~Use sqrt(x) for $\sqrt{x}$ and root(x)(y) for $\sqrt[y]{x}$.~~

$\sqrt[3]{320} =$ $\sqrt[3]{64}\sqrt[3]{5} = 4\sqrt[3]{5}$

#21 Points possible: 2. Total attempts: 1

Use the product property for radicals to simplify the following radical expressions as much as possible. Assume all variables represent positive numbers. ~~Use sqrt(x) for $\sqrt{x}$ and root(x)(y) for $\sqrt[y]{x}$.~~

$\sqrt[4]{162} =$ $\sqrt[4]{81}\sqrt[4]{2} = 2\sqrt[4]{2}$

#22 Points possible: 3. Total attempts: 1

Use the product property for radicals to simplify the following radical expressions as much as possible. Assume all variables represent positive numbers. ~~Use sqrt(x) for $\sqrt{x}$ and root(x)(y) for $\sqrt[y]{x}$.~~

$\sqrt{20x^3} =$ $\sqrt{4}\sqrt{5}\sqrt{x^2}\sqrt{x} = 2x\sqrt{5x}$

#23 Points possible: 3. Total attempts: 1

Use the product property for radicals to simplify the following radical expressions as much as possible. Assume all variables represent positive numbers. ~~Use sqrt(x) for $\sqrt{x}$ and root(x)(y) for $\sqrt[y]{x}$.~~

$\sqrt[3]{250a^8b^{12}} =$ $\sqrt[3]{125}\sqrt[3]{2}\sqrt[3]{a^6}\sqrt[3]{a^2}\sqrt{b^{12}} = 5a^2b^6\sqrt[3]{2a^2}$

#24 Points possible: 2. Total attempts: 1

Use the product property for radicals to simplify the following radical expressions as much as possible. Assume all variables represent positive numbers. ~~Use sqrt(x) for $\sqrt{x}$ and root(x)(y) for $\sqrt[y]{x}$.~~

$\sqrt{96a^2b^2c^3} =$ $\sqrt{16}\sqrt{6}\sqrt{a^2}\sqrt{b^2}\sqrt{c^2}\sqrt{c} = 4abc\sqrt{6c}$

#25 Points possible: 2. Total attempts: 1

Use the product property for radicals to simplify the following radical expressions as much as possible. Assume all variables represent positive numbers. ~~Use sqrt(x) for $\sqrt{x}$ and root(x)(y) for $\sqrt[y]{x}$.~~

$\sqrt[3]{1080a^2b^3c^5} =$ $\sqrt[3]{216}\sqrt[3]{5}\sqrt[3]{a^2}\sqrt[3]{b^3}\sqrt[3]{c^3}\sqrt[3]{c^2} = 6bc\sqrt[3]{5a^2c^2}$

#26 Points possible: 3. Total attempts: 1

Use the product property for radicals to simplify the following radical expressions as much as possible. Assume all variables represent positive numbers. ~~Use sqrt(x) for $\sqrt{x}$ and root(x)(y) for $\sqrt[x]{y}$.~~

$\sqrt[3]{135a^4b^2} =$ $\sqrt[3]{27}\ \sqrt[3]{5}\ \sqrt[3]{a^3}\sqrt[3]{a}\ \sqrt[3]{b^2} = (3a)\sqrt[3]{5ab^2}$

#27 Points possible: 2. Total attempts: 1

Simplify the expression. Do not assume the variables represent positive numbers.

$\sqrt{64y^2} =$ $8y$

#28 Points possible: 3. Total attempts: 1

Simplify the expression. Do not assume the variables represent positive numbers.

$\sqrt{125x^3y^2} =$ $\sqrt{25}\ \sqrt{5}\ \sqrt{x^2}\sqrt{x}\ \sqrt{y^2} = 5xy\sqrt{5x}$

#29 Points possible: 3. Total attempts: 1

Assume all variables are positive, and find the following root:

$\sqrt[5]{32a^{15}b^{15}} =$ $2a^3b^3$

#30 Points possible: 2. Total attempts: 1

Use the properties of exponents to simplify the following as much as possible. Assume all bases are positive.

$\dfrac{x^{\frac{3}{5}}y^{\frac{5}{6}}}{x^{\frac{5}{6}}y^{\frac{4}{5}}} =$ $x^{3/5 - 5/6}\ y^{5/6 - 4/5} = x^{-7/30}\ y^{1/30} = \dfrac{y^{1/30}}{x^{7/30}}$

$\frac{3}{5} - \frac{5}{6} = \frac{18}{30} - \frac{25}{30} = \frac{-7}{30}$

$\frac{5}{6} - \frac{4}{5} = \frac{25}{30} - \frac{24}{30} = \frac{1}{30}$

#31 Points possible: 2. Total attempts: 1

Use the product property for radicals to simplify the following radical expressions as much as possible. Assume all variables represent positive numbers. ~~Use sqrt(x) for $\sqrt{x}$ and root(x)(y) for $\sqrt[x]{y}$.~~

$\sqrt{48x^3} =$ $\sqrt{16}\sqrt{3}\sqrt{x^2}\sqrt{x} = 4x\sqrt{3x}$
