7.3A Guided Notes

What is a Radical?

$$\sqrt{\quad} \qquad \sqrt[\square]{x^{\square}} = x^{\frac{\square}{\square}} \qquad \sqrt[\square]{x^{\square}} = x^{\frac{\square}{\square}}$$

Converting Rational Exponents to Radicals:

$125^{\frac{1}{3}}$ = $8^{\frac{2}{3}}$ =

$(3x)^{\frac{1}{2}}$ = $5x^{\frac{7}{2}}$ =

Converting Radicals to Rational Exponents:

$\sqrt{49}$ = $\sqrt[5]{32^2}$ =

$\sqrt{16abc}$ = $15\sqrt[3]{xy}$ = $4\sqrt{5x}$ =

Evaluating Exponential Expressions:

Use the Calculator to Evaluate

$1296^{\frac{1}{4}}$ = $36^{\frac{3}{2}}$ = $\left(\frac{1}{9}\right)^{\frac{1}{2}}$ =

$\sqrt[3]{27^2}$ = $\sqrt[4]{256^5}$ = $\sqrt[4]{\dfrac{81}{625}}$ =

Solving Exponential Equations:

RULE: If the bases are the _____, then the _____ must be EQUAL!!

$$2^x = 2^9 \qquad\qquad\qquad\qquad 3^{x-3} = 3^5$$

What if the bases aren't the same????

Step 1: Write a _____ base with a box as an exponent

Step 2: Guess and check in your calculator!

$$3^x = 81 \qquad\qquad 6^{x-1} = 1296 \qquad\qquad 2^{4x+3} = 2048$$

What if the base is bigger than the other side?

$$36^x = 6 \qquad\qquad 64^x = 4 \qquad\qquad 16^x = 2$$

Homework Problems:

7.3 (p. 414) #17-43 odd, 45-48, 51-53