WILLIAM D. LAW, JR. LEARNING COMMONS

EXPONENTS AND FRACTIONS

1. An exponent is a short way of writing a repeated _____.

2. 6^3 means _____ factors of _____.

3. Simplify 6^3 . _____

In the same way

$\frac{2}{3}\cdot\frac{2}{3}\cdot\frac{2}{3}$ can be written as $\left(\frac{2}{3}\right)^3$

The parentheses are used to show that <u>all</u> of the fraction is a factor.

$\frac{3^2}{4}$ means $\frac{3\cdot 3}{4}$ or $\frac{9}{4}$

$\left(\frac{3}{4}\right)^2$ means $\frac{3}{4}\cdot\frac{3}{4}$ or $\frac{9}{16}$

A WORD OF WARNING:
When you write the same fraction as a factor, you <u>will</u> have common denominators, but you still use the rule for multiplication: <u>multiply the denominators as well as the numerators.</u>

REMEMBER: We <u>had</u> to have common denominators to <u>add</u> or <u>subtract</u>, but we just kept <u>that</u> denominator.

ADD: $\frac{1}{6}+\frac{4}{6}=\frac{4+1}{6}=\frac{5}{6}$

SUBTRACT: $\frac{7}{9}-\frac{2}{9}=\frac{7-2}{9}=\frac{5}{9}$

In <u>multiplication, we do not have to have a common denominator, but if we do, we multiply the denominators.</u>

MULTIPLY: $\frac{3}{8}\cdot\frac{3}{8}=\frac{3\cdot 3}{8\cdot 8}=\frac{9}{64}$

4. – 8. Simplify:

4. $\left(\frac{5}{6}\right)^2$ 5. $\left(\frac{1}{4}\right)^3$ 6. $\left(\frac{2}{3}\right)^4\cdot\frac{3}{8}$

7. $\left(\frac{5}{6}\right)^2\cdot\left(\frac{3}{4}\right)^3$ 8. $\left(\frac{1}{10}\right)^3$

ANSWERS:

1. multiplication
2. 3 factors of 6
3. 216 (It's $6\cdot 6\cdot 6$)
4. $\frac{25}{36}$
5. $\frac{1}{64}$
6. $\frac{2}{27}$
7. $\frac{75}{256}$
8. $\frac{1}{1000}$