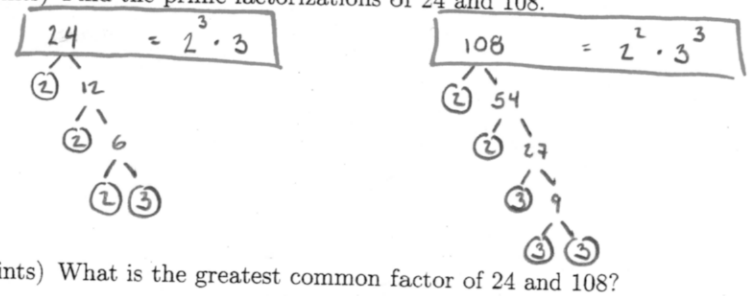
Name: *Answer Key*

Math 71 Elementary Algebra **1/4/2017**
Quiz 1

Calculators are not allowed. Box your final answers. If you need more space, you may continue your work on the back of the page.

1. (a) (4 points) Find the prime factorizations of 24 and 108.



(b) (4 points) What is the greatest common factor of 24 and 108?

(common factors raised to lowest exponents) $2^2 \cdot 3 = \boxed{12}$

(c) (4 points) Rewrite $\frac{24}{108}$ in simplified form.

(divide top & bottom by GCF) $\frac{24}{108} = \frac{12 \cdot 2}{12 \cdot 9} = \frac{12}{12} \cdot \frac{2}{9} = 1 \cdot \frac{2}{9} = \boxed{\frac{2}{9}}$

2. Compute the following product and quotient and give your answers in simplified form.

(a) (7 points) $\frac{52}{15} \cdot \frac{3}{11} \cdot \frac{35}{39} \cdot \frac{33}{49}$

$= \frac{\cancel{13} \cdot 4}{\cancel{3} \cdot \cancel{5}} \cdot \frac{\cancel{3}}{\cancel{11}} \cdot \frac{\cancel{5} \cdot \cancel{7}}{\cancel{3} \cdot \cancel{13}} \cdot \frac{\cancel{3} \cdot \cancel{11}}{\cancel{7} \cdot \cancel{7}} = \boxed{\frac{4}{7}}$

(b) (6 points) $\frac{46}{81} \div \frac{23}{135} = \frac{46}{81} \cdot \frac{135}{23}$ ("switch & flip" or "keep, change, flip")

$= \frac{2 \cdot \cancel{23}}{3 \cdot \cancel{27}} \cdot \frac{5 \cdot \cancel{27}}{\cancel{23}} = \frac{2 \cdot 5}{3} = \boxed{\frac{10}{3}}$