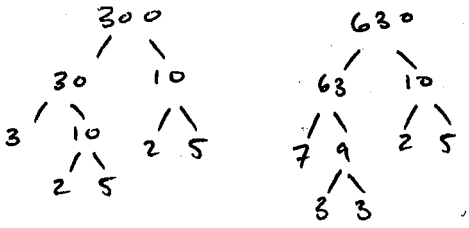
Math 102 - Fall 2013 - Quiz #8 **Score:** _____ out of 10.

Name: key

Show all work clearly and in order.

1. Compute and simplify GCF(300, 630)

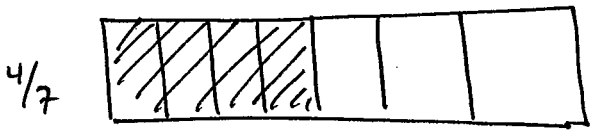


$300 = 2^2 \cdot 3^1 \cdot 5^2$ $630 = 2^1 \cdot 3^2 \cdot 5^1 \cdot 7^1$

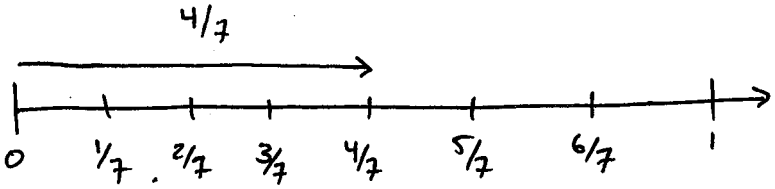
$GCF(300, 630) = 2^1 \cdot 3^1 \cdot 5^1 \cdot 7^0 = 2 \cdot 3 \cdot 5 = \boxed{30}$

2. Compute and simplify LCM(300, 630) = $2^2 \cdot 3^2 \cdot 5^2 \cdot 7^1 = \boxed{6300}$

3. Draw a region/area model to represent the fraction 4/7.



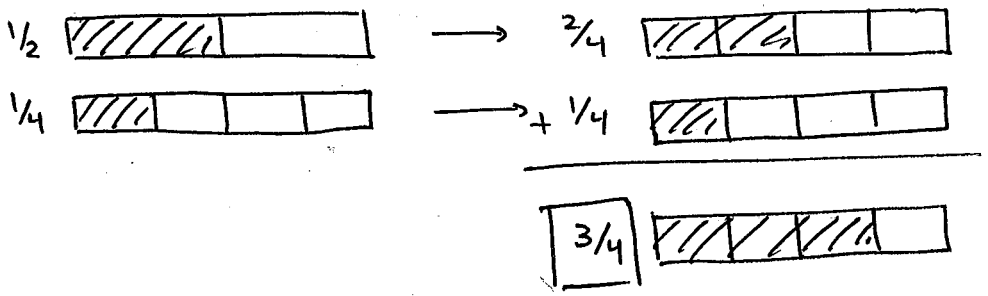
4. Draw a number-line model to represent the fraction 4/7.



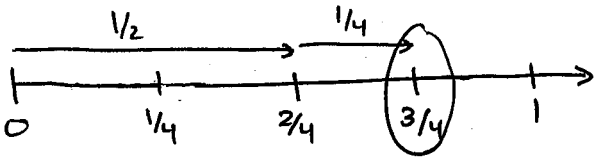
5. Simplify the fraction $\frac{2^5 \cdot 3 \cdot 7^3}{2^2 \cdot 3 \cdot 5^2}$ = $\boxed{\frac{2^1 \cdot 7^3}{3 \cdot 5^1}} = \frac{686}{15}$

6. (a) Simplify $\frac{1}{2}+\frac{1}{4}=$ $\frac{2}{4}+\frac{1}{4}=\boxed{\frac{3}{4}}$

(b) Illustrate your solution to (a) using an area (region) model.



(c) Illustrate your solution to (a) using a number-line model.



$\boxed{3/4}$

7. Determine whether 67 is prime or composite.

$2 \nmid 67$ since $2 \nmid 7$ (67 does not end in 0,2,4,6,8)

$3 \nmid 67$ since $3 \nmid (13)$

$4 \nmid 67$ since $4\overline{)67}$ R 3 ← not 0.
-4
27
-24
3

$5 \nmid 67$ since 67 does not end with 0 or 5

$6 \nmid 67$ since $2 \nmid 67$ (or $3 \nmid 67$)

$7 \nmid 67$ since $7\overline{)67}$ R 4 ← not 0
-63
4

$8 \nmid 67$ since $8\overline{)67}$ R 3 ← not 0.
-64
3

and we do not need to check anymore since $8 < \sqrt{67} < 9$.

Hence, 67 is $\boxed{\text{prime}}$