

# Math 206 - Quiz 2

September 1, 2010

Name key

Score \_\_\_\_\_

Show all work to receive full credit. Supply explanations when necessary.

1. (1.5 points) It takes Charlie two hours to paint four walls. How long does it take Charlie to paint two walls? Use and explain three different approaches to solve this problem.

UNIT RATE APPROACH	SCALE FACTOR APPROACH	TRADITIONAL CROSS MULTIPLYING
$\frac{2 \text{ Hours}}{4 \text{ Walls}} = \frac{1/2 \text{ Hour}}{1 \text{ Wall}}$	<p>2 WALLS IS <math>1/2</math> AS MUCH, SO IT WILL TAKE <math>1/2</math> THE TIME <math>1/2(2) = 1 \text{ Hr}</math></p>	$\frac{2 \text{ Hours}}{4 \text{ Walls}} = \frac{X \text{ Hours}}{2 \text{ Walls}}$ $4X = 4 \Rightarrow X = 1$
$2 \text{ Walls} \Rightarrow 2(1/2) = 1 \text{ Hr}$		

2. (1.5 points) The force of gravity on earth is six times as strong as the force of gravity on the moon. The force of gravity on Jupiter is 2.5 times as strong as the force of gravity on earth. Let  $e$ ,  $m$  and  $j$  represent the forces of gravity on the earth, moon, and Jupiter, respectively. Find an equation relating  $m$  and  $j$ .

$$\underbrace{\frac{e}{m} = \frac{6}{1}}_{e = 6m}, \quad \frac{j}{e} = \frac{2.5}{1}$$

$$e = 6m, \quad j = 2.5e \Rightarrow j = 2.5(6m)$$

$j = 15m$

3. (2 points) Rover can chew up 2 super-size rawhide bones in 3 hr. Rex can chew up 3 super-size rawhide bones in 2 hr. If they chew together, how long will it take them to chew up 4 bones?

Rover

$$\frac{2 \text{ BONES}}{3 \text{ Hr}} = \frac{2/3 \text{ BONES}}{1 \text{ Hr}}$$

Rex

$$\frac{3 \text{ BONES}}{2 \text{ Hr}} = \frac{3/2 \text{ BONES}}{1 \text{ Hr}}$$

TOGETHER:

$$\frac{2/3 \text{ BONES}}{1 \text{ Hour}} + \frac{3/2 \text{ BONES}}{1 \text{ Hour}} = \frac{13/6 \text{ BONES}}{1 \text{ Hour}}$$

$$\frac{13/6}{1} = \frac{4}{X}$$

$$\frac{13}{6}X = 4$$

$$X = \frac{24}{13} \text{ Hr}$$