Unit 7- Similarity Day 2

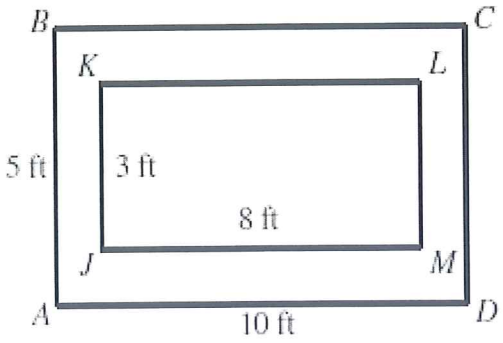
Name: _____ Hour: _____

Proportion Review Homework

1. The male to female ratio in a particular country is 52 to 48. Write this ratio as a fraction in reduced form.

$\frac{\text{male}}{\text{female}} : \frac{52}{48} = \boxed{\frac{13}{12}}$

2. Find the ratio of the perimeter of rectangle *BCDA* to the perimeter of rectangle *KLMJ*.



BCDA perimeter = 5+10+5+10

P = 30 ft

KLMJ perimeter = 3+8+3+8

P = 22 ft

$\frac{30}{22} = \frac{15}{11}$

[A] $\frac{11}{15}$ [B] $\frac{15}{11}$ [C] $\frac{5}{3}$ [D] $\frac{5}{4}$

Solve the following proportions! You must show all work in order to receive credit! Simplify all answers (you may use decimals).

3. $\frac{20}{45} = \frac{34}{b}$

$34 \cdot 45 = 20b$

$1530 = 20b$

$\boxed{b = 76.5}$ or $\frac{153}{2}$ ☺

4. $\frac{42}{56} = \frac{n}{48}$

$56n = 42 \cdot 48$

$56n = 2016$

$\boxed{n = 36}$

5. $\frac{x+1}{5}=\frac{5}{11}$

$11(x+1)=5\cdot5$

$11x+11=25$

$11x=14$

$\boxed{x=\frac{14}{11}}$ $(x\approx1.273)$

6. $\frac{10}{3}=\frac{8}{x-4}$

$10(x-4)=8\cdot3$

$10x-40=24$

$10x=64$

$x=\frac{64}{10}$

$\boxed{x=\frac{32}{5}}$ (6.4)

7. $\frac{x+8}{8}=\frac{6}{7}$

$7(x+8)=8\cdot6$

$7x+56=48$

$7x=-8$

$\boxed{x=\frac{-8}{7}}$ $(x\approx1.143)$

8. $\frac{y+5}{5}=\frac{6}{y-2}$

$(y+5)(y-2)=5\cdot6$

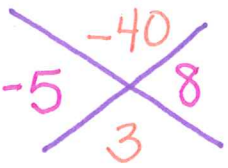
$y^2+3y-10=30$

$y^2+3y-40=0$

$(y-5)(y+8)=0$

$y-5=0$ $\quad y+8=0$

$\boxed{y=5}$ $\quad\boxed{y=-8}$



	y	-5
y	y^2	$-5y$
$+8$	$8y$	-40

$\{5,-8\}$

9. $\frac{m+3}{4}=\frac{11}{m-4}$

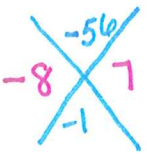
$(m+3)(m-4)=4\cdot11$

$m^2-m-12=44$

$m^2-m-56=0$

$(m-8)(m+7)=0$

$m-8=0$ $\quad m+7=0$



	m	-8
m	m^2	$-8m$
$+7$	$7m$	-56

$\boxed{m=8}$ AND $\boxed{m=-7}$

10. $\frac{2}{p+4} = \frac{p+5}{3}$

$2 \cdot 3 = (p+4)(p+5)$

$6 = p^2 + 4p + 5p + 20$

$6 = p^2 + 9p + 20$

$0 = p^2 + 9p + 14$

$0 = (p+2)(p+7)$ → $p+2=0$, $p=-2$; $p+7=0$, $p=-7$

$\{-7, -2\}$

14, 7, 2, 9

	p	$+2$
p	p^2	$2p$
$+7$	$7p$	14

11. $\frac{n+4}{3} = \frac{-3}{n-2}$

$(n+4)(n-2) = 3 \cdot -3$

$n^2 + 4n - 2n - 8 = -9$

$n^2 + 2n - 8 = -9$

$n^2 + 2n + 1 = 0$

$(n+1)(n+1) = 0$

$n+1=0$, $n=-1$

1, 1, 1, 2

	n	$+1$
n	n^2	n
$+1$	n	1

Solve the following proportions! You must show all work in order to receive credit! These will be checked!! Simplify all answers (you may use decimals).

12. A bus travels 80 miles on 4 gallons of gas. Write and solve a proportion to determine the number of gallons needed to travel 300 miles.

$\frac{\text{miles}}{\text{gallons}}$ $\frac{80}{4} = \frac{300}{x}$ →

$4 \cdot 300 = 80x$

$1200 = 80x$

$x = 15$ gallons

13. On a blueprint, the scale indicates that 6 centimeters represent 15 feet. What is the length of the room that is 14.4 centimeters long and 5 centimeters wide on a blueprint?

$\frac{\text{cm}}{\text{ft}}$ $\frac{6}{15} = \frac{14.4}{x}$ →

$6x = 15 \cdot 14.4$

$6x = 216$

$x = 36$ ft