

# Math 20, Thursday, July 31

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Return tests + go over

warm-up: calculate your grade  
Homework check-ins

Q's on 5.1

New material 5.2, 5.3, 5.4

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Bonus 2 due next Thursday

Test Corrections due next Thursday

Re-do the problem correctly	Error ex: sign arithmetic	what you learned
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get up to half the points back that you missed

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Q's on 5.1

#33

3.8 : 7.8

$$= \frac{3.8 \cdot 10}{7.8 \cdot 10}$$

$$= \frac{38}{78}$$

35+4

51  
63  
61  
97  
71

## Section 5.2 - Proportions

$$\frac{3 \text{ scoops}}{4 \text{ cups of water}}$$

$$.75 \text{ scoops/cup}$$

$$\frac{4 \text{ scoops}}{6 \text{ cups of water}}$$

$$.6 \text{ scoops/cup}$$

comparing 2 ratios or rates

way to tell if they are equal

$$\left. \begin{array}{c} \frac{3}{4} = \frac{4}{6} \\ \text{?} \end{array} \right\} \text{proportion}$$

$$3 \cdot 6 = 4 \cdot 4$$

$$18 \neq 16 \text{ false}$$

22.  $\frac{2}{5} = \frac{8}{20}$  reduce  
 $\frac{2}{5} = \frac{2}{5}$  true

30.  $\frac{0.6}{1.4} = \frac{0.9}{2.1}$  cross-products

$$0.6(2.1) \stackrel{?}{=} 1.4(.9)$$

$$1.26 = 1.26 \text{ true}$$

ex:  $\frac{1}{2} = \frac{2}{4}$  true

$$1 \cdot 4 = 2 \cdot 2$$

when the cross-products are equal, the proportion is true

$$= \frac{19}{39}$$

51.  $\frac{75 \text{ days}}{20 \text{ gallons of water}}$

$= \frac{15 \text{ days}}{4 \text{ gallons}}$  Simplify

~~63.~~

61. 12 errors in 8 hours

$\frac{12 \text{ errors}}{8 \text{ hours}} = 1.5 \text{ errors per hour}$  divide  
errors/hour

63.  $\frac{4,007,500 \text{ people}}{12,500 \text{ sq. mi.}}$

$= 320.6 \text{ people per sq. mi.}$

71. \$.07 per sq. ft.

97.  $\frac{\text{gal}}{\text{min}} \frac{11,880}{27}$  rate of flow  
gal/min  
~~min/gal~~

$= 440 \text{ gal per min}$

107. gas mileage

1,235 mi      51.3 gal

$\frac{1235}{51.3} \frac{\text{mi}}{\text{gal}}$

$= 24.7 \text{ miles per gal}$

1,456 mi      55.78 gal

$\frac{1456}{55.78}$

$= 26.10 \text{ mpg}$

when the cross-products are not equal the proportion is not true

$$34. \quad \frac{2\frac{1}{2}}{1\frac{1}{5}} = \frac{3\frac{3}{4}}{2\frac{1}{10}}$$

$$\frac{\frac{5}{2}}{\frac{6}{5}} = \frac{\frac{15}{4}}{\frac{21}{10}}$$

$$\frac{5}{2} \cdot \frac{21}{10} \stackrel{?}{=} \frac{6}{5} \cdot \frac{15}{4}$$

$$\frac{21}{4} \stackrel{?}{=} \frac{18}{4}$$

$$\frac{21}{4} \neq \frac{18}{4} \quad \text{false}$$

Solving Proportions → find the

42.

$$\frac{7}{14} = \frac{2}{x}$$

$$x = 4$$

missing number ~~2:33~~

In algebra the unknown is represented by a letter - variable

Cross-products

$$7 \cdot x = 14 \cdot 2$$

$$7x = 28$$

$$x = 4$$

$$\frac{7}{14} = \frac{2}{x} \quad \text{fish}$$

$$\frac{2 \cdot 14}{7} = \frac{28}{7} = 4$$

44.

$$\frac{3}{6} = \frac{x}{8}$$

$$6x = 3 \cdot 8$$

$$\frac{6x}{6} = \frac{24}{6}$$

$$x = 4$$

46.

$$\frac{0.4}{3.4} = \frac{x}{13.6}$$

$$3.4x = 0.4(13.6)$$

$$\frac{3.4x}{3.4} = \frac{5.4}{3.4}$$

$$x = 1.6$$

56.

$$\frac{15}{10} = \frac{x}{\frac{1}{3}}$$

$$10x = \frac{1}{3} \cdot \frac{15}{1}$$

$$\frac{10x}{10} = \frac{5}{10} \quad x = \frac{5}{10} = \frac{1}{2}$$

$$x = \frac{1}{2}$$

70.

$$\frac{8.6}{2.4} = \frac{x}{6}$$

$$2.4x = 8.6(6)$$

$$2.4x = 51.6$$