

Math 60, Wednesday, May 7

- Turn in Mission 2
- Q's on 2.6
- New material 3.2 (skip 3.1)

Big Bad Boss 2 - Next Monday - Demom
Review sheet handout today

Checkpoint 6 - Friday (2.5, 2.6, 3.2)

Q's

2.6

15.

$$x > \left(\frac{5}{2}\right)$$

$2\frac{1}{2}$

$()$
 0

$[]$
 \bullet

15
17
105



$(2.5, \infty)$

$\frac{5}{2}$

$2\frac{1}{2}$

$\{x \mid x > \frac{5}{2}\}$

17. $x \leq 0$



$(-\infty, 0]$

41. $\frac{3}{3} \cdot \frac{x}{3} > -2 \cdot 3$

$x > -6$



$$(-6, \infty)$$

$$\{x \mid x > -6\}$$

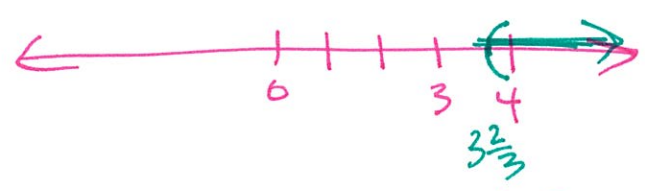
$$67. \quad 2x - 5 > -x + 6$$

$$\begin{array}{r} +x \qquad \qquad +x \\ \hline 3x - 5 > 6 \\ \qquad +5 \qquad \qquad +5 \end{array}$$

$$\begin{array}{r} 3x \qquad \qquad > \qquad 11 \\ \hline 3 \qquad \qquad \qquad 3 \end{array}$$

$$x > \frac{11}{3}$$

$$3\frac{2}{3}$$



$$(3\frac{2}{3}, \infty)$$

$$\{x \mid x > 3\frac{2}{3}\}$$

$$105. \quad N = 550 - 9x$$

$$\begin{array}{r} 550 - 9x < 370 \\ -550 \qquad \qquad -550 \end{array}$$

$$\begin{array}{r} -9x < -180 \\ \hline -9 \qquad \downarrow \qquad -9 \end{array}$$

mult or
div by a
negative

$$x > 20 \text{ years}$$

~~Year 2008~~ (or starting in 2009)
After 2008, cigarette consumption
will be less than 370 billion cigarettes
per year.

Chapter 3 - Problem Solving

Section 3.2 - Ratio and Proportion

$$\text{ratio : } \frac{\text{women}}{\text{men}} = \frac{12}{10}$$
$$= \frac{6}{5}$$

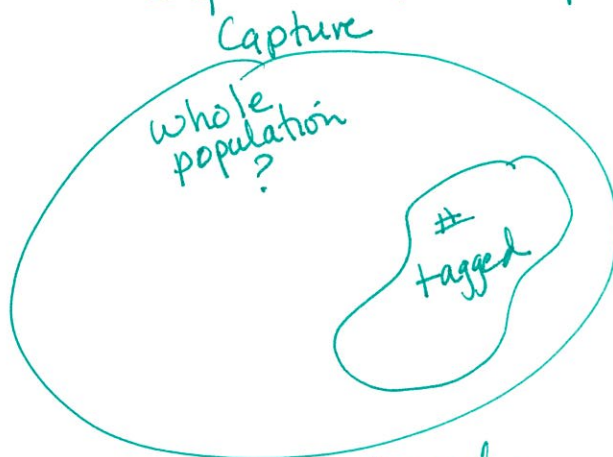
Proportion: Set two ratios equal to each other

$$\frac{\text{women}}{\text{men}} = \frac{6}{5} = \frac{X}{1000}$$
$$\frac{5X}{5} = \frac{6000}{5}$$
$$X = 1,200 \text{ women}$$

$$\frac{1}{2} = \frac{4}{8}$$
$$1 \cdot 8 = 2 \cdot 4$$

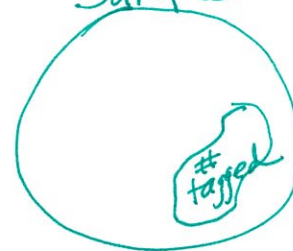
Application

Capture / Recapture



(example 4 on p 199)

Recapture sample



$$\frac{\text{total tagged}}{\text{whole population}} = \frac{\text{\# tagged in sample}}{\text{\# in the sample}}$$

$$\frac{420 \text{ total tagged}}{X} = \frac{75}{150 \text{ caught}}$$

$$\frac{75X}{75} = \frac{420 \cdot 150}{75}$$
$$= 840$$

Name Key

Date _____

Practice Set 3.2
Ratio and Proportion

Express each ratio as a fraction in lowest terms.

1. 32 to 48

$$\frac{32}{48} = \frac{16}{24} = \frac{2}{3}$$

1. $\frac{2}{3}$

2. 20 to 55

$$\frac{20}{55} = \frac{4}{11}$$

2. $\frac{4}{11}$

3. 76 to 16

$$\frac{76}{16} = \frac{38}{8} = \frac{19}{4}$$

3. $\frac{19}{4}$

Determine whether each of the following is a proportion by using cross products.

4. ~~$\frac{8}{9} = \frac{20}{22}$~~

$$8 \cdot 22 \stackrel{?}{=} 20 \cdot 9$$

$$180 \neq 176 \quad F$$

4. not a proportion

5. $\frac{15}{16} = \frac{180}{192}$

$$15 \cdot 192 = 180 \cdot 16 \quad T$$

5. is a proportion

Solve each proportion.

6. ~~$\frac{x}{5} = \frac{105}{75}$~~

$$75x = 5 \cdot 105$$

6. $\{7\}$

7. $\frac{4.2}{a} = \frac{8}{5}$

$$\frac{75x = 525}{75} \quad x = 7$$

7. $\left\{\frac{21}{8}\right\}$

$$\frac{8a}{8} = \frac{21}{8}$$

8. $\frac{18}{30} = \frac{m}{4}$

$$30m = 18 \cdot 4$$

8. $\left\{\frac{12}{5}\right\}$

$$\frac{30m = 72}{30} \quad \frac{72}{30}$$

9. $\frac{p}{15} = \frac{11}{12}$

$$m = \frac{36}{15} = \frac{12}{5}$$

9. ~~$\left\{\frac{11}{15}\right\}$~~ $\{13.75\}$

$$12p = 11 \cdot 15$$

$$12p = 165 \quad p = 13.75$$

10. $\frac{x}{54} = \frac{5}{6}$

$$\frac{6x = 5 \cdot 54}{6} \quad \frac{270}{6}$$

10. $\{45\}$

$$x = 45$$

11. $\frac{x}{4} = \frac{x-3}{2}$ $2x = 4(x-3)$ *check:*
 $\frac{6}{4} = \frac{6-3}{2}$
 $\frac{3}{2} = \frac{3}{2} \checkmark$

11. 63

12. $\frac{y+1}{5} = \frac{3y}{10}$ $-2x = -12$ $x = 6$
 $\frac{-2x}{-2} = \frac{-12}{-2}$

12. 22

13. $\frac{2x-3}{x+5} = \frac{5}{9}$ $10y + 10 = 15y$
 $5(x+5) = 9(2x-3)$
 $5x + 25 = 18x - 27$
 $10 = \frac{5y}{5}$
 $2 = y$

13. 43

Use a proportion to solve each problem.

14. An office building leases space monthly for \$32.50 for each 50 square foot. How much would it cost to lease a 1,050 square foot space?
 $\frac{32.50}{50 \text{ ft}^2} = \frac{x}{1,050}$ $52 = 13x$
 $\frac{52}{13} = \frac{13x}{13}$
 $4 = x$

14. It would cost \$682.50 for a 1,050 sq. ft. space.

15. A store advertises 4 oversized bath towels on sale for \$25. How much would it cost to purchase 10 bath towels?
 $\frac{4}{25} = \frac{10}{x}$ $4x = 250$
 $\frac{4x}{4} = \frac{250}{4}$ $x = 682.5$

15. It would cost \$62.50 for 10 towels.

16. In a newspaper survey 4 out of 5 people that responded said they preferred bottled water to the local tap water. If 40,000 people responded, how many preferred bottled water?
 $\frac{4}{5} = \frac{x}{40,000}$ $5x = 160,000$
 $\frac{5x}{5} = \frac{160,000}{5}$ $x = 32,000$

16. 32,000 people preferred bottled water.

17. *tricky* The ratio of female nurses to male nurses at Mercy General Hospital is 7 to 2. If there are 405 nurses on staff, how many are males? How many are females?
 $\frac{7}{9} = \frac{x}{405}$ $\frac{2}{9} = \frac{x}{405}$

17. There are 315 female and 90 male nurses.

18. One instructor's pass rate for her basic algebra classes is 85%. This means that 17 out of every 20 of her students will pass. One semester she has 160 enrolled in her classes. How many could be expected to pass her class?
 $\frac{17}{20} = \frac{x}{160}$ $20x = 2720$
 $\frac{20x}{20} = \frac{2720}{20}$
 $x = 136$

18. 136 students would be expected to pass the class.