


**1st 5**  $14 \times 29 = 406$   $\$ 150.$   $10\%$   $4/4/2011$   $35\%$   
 $10\%$   $1.429$   $\frac{50}{7.5}$   $\frac{10}{15}$   $\frac{20}{30}$   $\frac{30}{45}$   
**1) What is 35% of 120?**  $35\%$   $52.5$   
 $5\%$   $10\%$   $20\%$   $30\%$   $35\%$   
 $6$   $12$   $24$   $36$   $30\% + 5\% = 35\%$   
 $36 + 6 = 42$

**2) 15 is what percent of 80?**

**3) A DVD cost 19.99. If the sales tax rate is 9%, what is the total cost of the DVD?**

Ratio and Proportion Day 1



*same shape but different size*

**RATIO AND PROPORTION:  
 USING SIMILAR FIGURES TO  
 FIND DISTANCES.**

Ratio and Proportion Day 1

**Ratio** A comparison of two numbers.

A ratio can be written:

$x:y$       $\frac{x}{y}$       $x$  to  $y$   
 ( $y \neq 0$ )

$\frac{6}{0}$  *no solution*  
 $0 \times \text{nothing} = 6$

Ratio and Proportion Day 1

**Find the ratio between 62 and 100.**

*always reduced*

$\frac{62}{100} = \frac{31}{50}$

$62:100 = 31:50$

$62$  to  $100 = 31$  to  $50$

$\frac{75}{50} = \frac{3}{2}$  *3 to 2*

Ratio and Proportion Day 1

**Proportion** An equality between two ratios.

$\frac{1st}{2nd} \frac{a}{b} = \frac{c}{d} \frac{3rd}{4th}$   $a$  is the first term.  
 $b$  is the second term.  
 $c$  is the third term.  
 $d$  is the fourth term.

$62:100 = 31:50$

$\frac{62}{100} = \frac{31}{50}$

Ratio and Proportion Day 1

**Proportion** A comparison between two ratios.

$\frac{a}{b} = \frac{c}{d}$   $b$  and  $c$  are the means. *2nd + 3rd term*  
 $a$  and  $d$  are the extremes. *1st + 4th term*

$a:b = c:d$   $\frac{x}{2} = \frac{4}{5}$

Ratio and Proportion Day 1

### Equality of Cross Products

$$\frac{a}{b} = \frac{c}{d}$$

$$a \cdot d = b \cdot c$$

$\frac{62}{100} = \frac{31}{50}$   
 $3100 = 3100$   
 True proportion

Ratio and Proportion Day 1

### Extended Proportion

A proportion with 3 or more ratios.

$$\frac{a}{b} = \frac{c}{d} = \frac{e}{f}$$

5th term e

Ratio and Proportion Day 1

$$\frac{x}{4} = \frac{8}{7} = \frac{y}{3} = \frac{z}{2} = \frac{7}{w} = \frac{4}{v}$$

$\frac{x}{4} = \frac{8}{7}$   
 $7x = 32$   
 $x = \frac{32}{7} = 4\frac{4}{7}$

$\frac{8}{7} = \frac{y}{3}$   
 $7y = 24$   
 $y = 3\frac{3}{7}$

Ratio and Proportion Day 1

$$\frac{x}{4} = \frac{8}{7} = \frac{y}{3} = \frac{z}{2} = \frac{7}{w} = \frac{4}{v}$$

$\frac{z}{2} = \frac{8}{7}$   
 $7z = 16$   
 $z = 2\frac{2}{7}$

$\frac{7}{w} = \frac{8}{7}$   
 $8w = 49$   
 $w = 6\frac{1}{8}$

$\frac{4}{v} = \frac{8}{7}$   
 $8v = 28$   
 $v = 3\frac{4}{8} = 3\frac{1}{2}$   
 Always reduce

Ratio and Proportion Day 1

$$\frac{(k+5)}{10} = \frac{k-12}{9}$$

$9(k+5) = 10(k-12)$   
 $9k + 45 = 10k - 120$   
 $-9k \quad -9k$   
 $45 = k - 120$   
 $+120 \quad +120$   
 $165 = k$

Ratio and Proportion Day 1

- If  $a$  and  $b$  represent quantities measured in different units, then the ratio of  $a$  to  $b$  is a rate.
- A unit rate is a rate with a denominator of 1.
  - Ex. 40 miles per hour  $\frac{40 \text{ mi}}{1 \text{ hr}}$

$\frac{80 \text{ miles}}{2 \text{ hours}} = 40 \text{ miles in } 1 \text{ hr}$   
 $\frac{80}{2} = 40 \text{ miles in } 1 \text{ hr}$

Ratio and Proportion Day 1

■ Using Unit Rates

- The table at the right gives prices for different sizes of the same brand of apple juice. Find the unit rate (cost per ounce) for the 16 oz size.

Price	Volume
\$ .72	16 oz
\$ 1.20	32 oz
\$ 1.60	64 oz

$\frac{.72}{16} = \underline{\$0.045 \text{ per ounce}}$   
 $\frac{\$1.20}{32} = \underline{\$0.375 \text{ per ounce}}$   
 $\frac{1.60}{64} = \underline{\$0.025 \text{ per ounce}}$

- Find the unit rates for the other two sizes.
- Which of the three sizes has the lowest cost per ounce?  
64 oz

Ratio and Proportion Day 1

■ Determine if each is a proportion

- $\frac{4}{6} = \frac{12}{16}$   $64 \neq 72$  Not a proportion
- $\frac{3}{5} = \frac{6}{10}$   $30 = 30$  yes
- $\frac{0.4}{0.8} = \frac{0.7}{1.4}$   $.56 = .56$  yes

Ratio and Proportion Day 1

PW 1                  6 MAR 2012

- Workbook pg. 46 # 1 -11, 12 - 40 even

Ratio and Proportion Day 1