*Objective:*
Review solving problems with proportions.

# Proportions

## Agenda

**2nd: Finish Test**

**Warm-Up**

**Notes:**
Proportions
p. 15&16

Homework
ALL

Progress Reports
DUE Friday

Pick up this week's HW packet: WRITE YOUR NAME ON IT!!

### Warm-Up (Monday)

A one-pound Hercules beetle is said to be the strongest creature on earth for its size, able to carry 850 times its own body weight. If humans can carry the same amount proportionally, how much will a 125 lb human carry?

W  times  W

| | W | W |
|---|---|---|
| beetle | 850 | 1 |
| person | X | 125 |

$850 \cdot 125 = X$

106250 lbs

# 2nd period: You have



minutes to finish the test. When you are done, get your notebook out and be ready to take notes. I will (hopefully) have your progress reports by tomorrow, with test grades.

# Proportions p.15

1. In Mrs. Willis's first period Algebra I class, the ratio of boys to girls is 3:2. If there are 18 boys in the class, how many girls are there in the class?
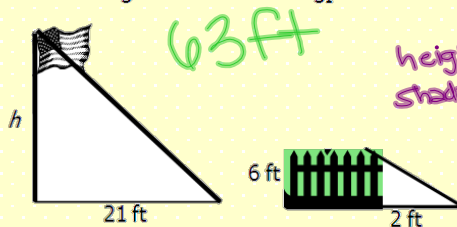
   **12 girls**

   | | Ratio | Actual |
   |---|---|---|
   | boys | $3 \times 6$ | 18 |
   | girls | $2 \times 6$ | x |

   $$\frac{3x}{3} = \frac{36}{3}$$

2. The ratio of boys to girls in track is 5 to 4. If there are 54 students in track, how many are boys? (Be careful!) **PART to WHOLE**
   How many are girls?

   **30 boys**

   $$54 - 30 = 24 \text{ girls}$$

   | | O | N |
   |---|---|---|
   | boys | 5 | x |
   | total | 9 | 54 |

   $$5(54) = 9x$$
   $$270 = 9x$$

3. A six foot tall fence post casts a shadow 2 feet long. At the same time, of day, a flagpole casts a shadow 21 feet long. How tall is the flagpole?

   **63 ft**

   |  | Flag | Fence |
   |---|---|---|
   | height | h | 6 |
   | shadow | 21 | 2 |

   $$\frac{2h}{2} = \frac{122}{2}$$

   *h*    21 ft    6 ft   2 ft

4. An airline food service finds that a recent flight of 122 passengers ordered dinner as shown in the table. Based on this information, estimate how many lasagna dinners will be needed for a flight of 380 passengers.

   | Dinner | Frequency |
   |---|---|
   | Chicken | 65 |
   | Fish | 30 |
   | Lasagna | 25 |
   | Vegetarian | 2 |

   **122**

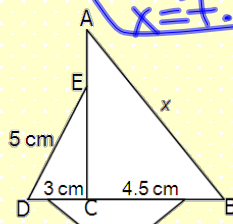   | | O | N |
   |---|---|---|
   | Lasagna | 25 | x |
   | total | 122 | 380 |

   $$x = 77.8$$
   **(78 meals)**

5. A jeweler created a pin so that the two triangles ($\triangle ABC$ and $\triangle EDC$) in the pin are similar. Write and solve a proportion to determine $x$, the length of one side of the larger triangle.

   **x = 7.5 cm**

   | | small O | big N |
   |---|---|---|
   | long | 5 | x |
   | base | 3 | 4.5 |

   $$\frac{5}{3} = \frac{x}{4.5}$$

   A, E, 5 cm, 3 cm, 4.5 cm, x, D, C, B

*Summary:*

# Proportions p.16

Algebra I - Unit 1: Topic 3 — Solving Proportions

**CROSS MULTIPLY**

**Solve each proportion.**

6. $\dfrac{2}{3} = \dfrac{(x+4)}{x}$

$2x = 3(x+4)$

$2x = 3x + 12$

$-2x \quad -2x$

$0 = x + 12$

$-12 \quad -12$

$\boxed{-12 = x}$

7. $\dfrac{3}{5} = \dfrac{(x+2)}{6}$

$18 = 5(x+2)$

$18 = 5x + 10$

$-10 \qquad -10$

$\dfrac{8}{5} = \dfrac{5x}{5}$

$\boxed{\dfrac{8}{5} = x}$

8. $\dfrac{(5+y)}{(y-3)} = \dfrac{14}{10}$

$10(5+y) = 14(y-3)$

$50 + 10y = 14y - 42$

$-10y \qquad -10y$

$\dfrac{50}{} = 4y - 42$

$+42 \qquad +42$

$\dfrac{92}{4} = \dfrac{4y}{4}$

$\boxed{23 = y}$

9. $\dfrac{(m+9)}{5} = \dfrac{(m+10)}{11}$

$11m + 99 = 5m + 50$

$-5m \qquad -5m$

$6m + 99 = 50$

$-99 \quad -99$

$\dfrac{6m}{6} = \dfrac{-49}{6}$

$m =$

10. $\dfrac{5}{2n} = \dfrac{8}{3n-24}$

11. $\dfrac{r+7}{-4} = \dfrac{r-12}{6}$

# Progress Reports
## Due (signed) by Friday for a free homework grade.

| Assessment Name | Type | Date | Max. | Weight | Grade |
|---|---|---|---|---|---|
| MathBook & Contact Card | Homework & Daily Work | 08/30/13 | 100 | 1 | 100 |
| HW: Punchline | Homework & Daily Work | 08/30/13 | 100 | 1 | 100 |
| First Week Quiz | Homework & Daily Work | 08/30/13 | 100 | 1 | 70 |
| Warm-Ups: Week 1.2 | Homework & Daily Work | 09/06/13 | 3 | 1 | 3 |
| HW: Packet 1.2 | Homework & Daily Work | 09/06/13 | 100 | 3 | 100 |
| Warm-Ups: Week 1.3 | Homework & Daily Work | 09/13/13 | 4 | 1 | 4 |
| HW: Packet 1.3 | Homework & Daily Work | 09/13/13 | 100 | 3 | 95 |
| Quiz: Unit 1 | Quizzes | 09/06/13 | 100 | 1 | 83 |
| Bonus Points: Review Unit 1 | Tests | 09/13/13 | 100 | 1 | 9 |
| Test: Unit 1 T1-T2 | Tests | 09/13/13 | 100 | 1 | 56 |

* NOTE: Secondary Only - There is a 30 point grade penalty on any work due during truancy.

**Comments**

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| Assessment Type | Weight | Grade |
|---|---|---|
| Homework & Daily Work | 20 | 96 |
| Quizzes | 30 | 83 |
| Tests | 50 | 65 |
| **Overall Grade** | | **77** |

# Unit 1 Test 1 Correction Tutoring Times

(AM/PM only, No Lunches - SORRY)    AM: 8:15-9:00AM       PM: 4:15-5:00PM

| Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|
| 16<br><br>NONE | 17<br><br>PM ONLY | 18<br><br>AM<br>PM | 19<br><br>AM ONLY | 20<br><br>AM ONLY |
| 23<br><br>PM ONLY | 24<br><br>AM<br>PM | 25<br><br>PM ONLY | 26<br><br>NONE | 27<br><br>AM ONLY |

Anyone may sign up for test correction tutorials, but If the grade on your progress report is failing, you MUST sign up. Please note that if no one signs up for a certain day/time, then tutoring will be canceled. Also note that if you do not show up at the time you signed up for, your parents will be contacted and further disciplinary actions may be taken. Do not waste my time!!

Algebra I - Unit 1: Topic 3 – Solving Proportions _____ ALL _____

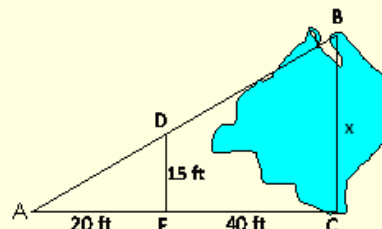**Practice - Solving Proportions**                                                                pp 114-120
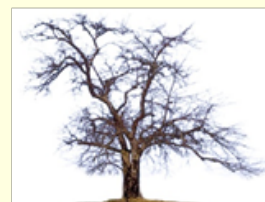
Name _____        Date _____        Per _____

**Solve each proportion.**

1.  $\dfrac{t-5}{4} = \dfrac{3}{2}$

2.  $\dfrac{1}{y-3} = \dfrac{3}{y-5}$

3.  Triangle *ABC* is similar to Triangle *ADE*.    What is, *x*, the distance across the lake from Point *B* to Point *C*?



4.  A museum has scale models representing different time periods in history. A scale in which one inch in the model represents two feet is used to construct the models. The museum's sculptor wants to build a model of an 21-foot-tall tree for one of the exhibits. How tall should she make the model of the tree?
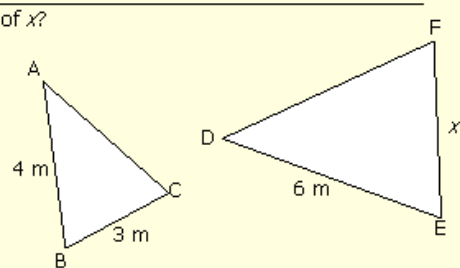


5.  STOP MART received a delivery of 1080 bottles of Coke and Diet Coke.  If the ratio of Coke delivered to Diet Coke delivered was 6:3, how many bottles of Diet Coke were delivered?

6.  $\dfrac{6p-2}{7} = \dfrac{5p+7}{8}$

7.  $\dfrac{a-3}{8} = \dfrac{3}{4}$

Algebra I – Unit 1: Topic 3 – Solving Proportions

8.  Triangle *ABC* is similar to Triangle *DEF*. What is the value of *x*?



9.  Marlene can walk $2\frac{1}{2}$ miles in 40 minutes. Determine how far she can walk in one hour.

B. Marlene increases her rate to 3 miles in 40 minutes. At this current rate, how far will she walk in one hour?

10. Vince is making cookies for his Single Survival class. The recipe he is using requires 1 cup of milk for 8 servings. If he wants to make enough cookies for 28 servings, how much milk will Vince need?

11. Josh is 1.8 meters tall. On a sunny day, Lenny measured Josh's shadow (3.5 meters) and the shadow of their house at the same time.

A.  Draw a picture to represent the situation.

B.  If the length of the house's shadow is 5 times the length of Josh's shadow, how long is the house's shadow?

C.  What is the height of the house?