



Math Olympiad and Problem Solving Programs
E120 - Honors Algebra Problem Solving
Problem Set 26.2 - Attendance and Proportion

Name:

Date:

1. If there were x adult tickets sold, then $1500 - x$ children tickets were sold. This gives us the following equation:

$$3.5x + 1.25(1500 - x) = 4575$$

$$3.5x + 1875 - 1.25x = 4575$$

$$2.25x = 2700$$

$$x = 1200$$

1,200 adult, 300 student

2. \$350

3. 500

4. 10

5. $A = C = 120, B = 190$

6. 1,120

7. 35,000

8. 450 ft

9. The downward force on a particular side of the fulcrum is directly proportional to weight \times distance from the fulcrum. This gives us the following proportion:

$$130 \cdot 14 = 140x$$

$$1820 = 140x$$

$$x = 13 \text{ in}$$

10. Suppose the rate of the current is s miles per hour and the speed of the boat in still water is b miles per hour. The boat travels downstream at $\frac{50}{2.5} = 20$ miles per hour and upstream at $\frac{50}{4} = 12.5$ miles per hour. We then get the following system of equations:

$$\begin{cases} b + s = 20 \\ b - s = 12.5 \end{cases}$$

Solving gives us the speed of the boat to be 16.25 mph and the rate of the current to be 3.75 mph.