

# Ratios and Proportions

1. The word problem below is solved in two ways. Continue both solutions.

A 500-cm stick is to be divided into two pieces so that the lengths of the pieces are in the ratio 2:5. How long are the pieces?

2x	5x
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← 500 →

(i)  $2x + 5x = 500$

z	500 - z
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← 500 →

(ii)  $\frac{z}{500 - z} = \frac{2}{5}$

2. Solve the proportions.

a.  $\frac{4}{x} = \frac{15}{55}$

b.  $\frac{5a}{7} = \frac{-2}{11}$

c.  $\frac{x + 4}{5} = \frac{5}{12}$

d.  $\frac{4 - x}{x + 5} = \frac{5}{8}$

e.  $\frac{x - 2}{12} = \frac{x + 6}{10}$

f.  $\frac{-3}{y - 9} = \frac{3}{y + 5}$

3. Jack and Jill shared the salary of \$800 so that their salaries were in the ratio 3:7. Find each person's salary.
4. Mary worked 7 hours and Michael worked 11 hours on a job. How should they divide the salary of \$200?
5. Liz owns 20 acres of a 90-acre plot, and her brother Les owns the rest. How should they divide a \$300 additional tax on the land?
6. Melinda, Marsha, and Joanna paid an extra \$35 fee for a suitcase on an airline. Of its contents, 12 lb was Melinda's, 17 lb was Marsha's, and 21 lb was Joanna's. How should they divide the fee? (Hint: Use method (i) of problem 1.)