

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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$\longleftarrow 500 \longrightarrow$

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

z	$500 - z$
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$\longleftarrow 500 \longrightarrow$

(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.)