Two-variable systems: quantities and models — Further practice

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Further practice 11

A rectangle has perimeter 30 cm. Its length x is 3 cm greater than its width y. Find both dimensions.

Further practice 12

A notebook costs x dollars and a pen y dollars. 4 notebooks and 3 pens cost 27 dollars; 2 notebooks and 5 pens cost 31 dollars. Find both unit prices.

Further practice 13

A boat travels downstream at 34 km/h and upstream at 26 km/h. Let x be its still-water speed and y the current speed, both in km/h. Find x and y.

Further practice 14

Machine A makes x items per hour and B y items per hour. Two hours of A plus one hour of B make 26 items; one hour of A plus three hours of B make 33 items. Find both hourly outputs.

Extension 15

Two crops occupy x and y hectares, totalling 100 hectares. Their yields are 2 and 3 tonnes per hectare, with total yield 260 tonnes. Find each crop area, then check both units.

Extension 16

A tickets cost 2 dollars each and B tickets 5 dollars each. 10 tickets cost 60 dollars. Let x and y be the numbers of A and B tickets. Form and solve a system; check whole nonnegative counts.