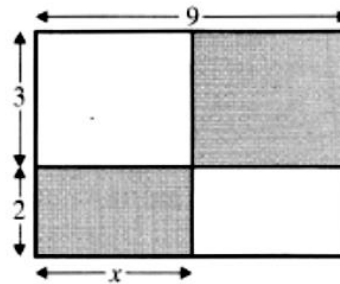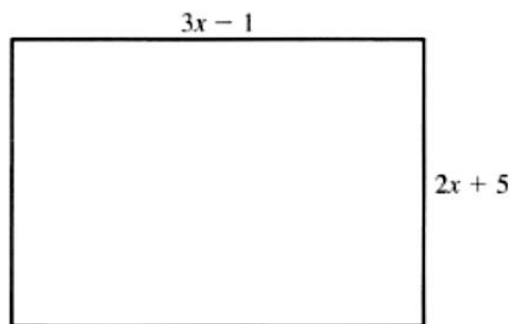# Forming Equations to Solve Problems - 1

1. Find the value of x so that the areas of the shaded rectangles are equal.

2. Two angles of an isosceles triangle are $a°$ and $(a + 10)°$. Find two possible values of a.

3. The perimeter of the rectangular picture is 37 cm. Find the value of x.

   $3x - 1$

   $2x + 5$

4. A man is 32 years older than his son. Ten years ago he was three times as old as his son was then. Find the present age of each.

5. A man runs to a telephone and back in 15 minutes. His speed on the way to the telephone is 5 m/s and his speed on the way back is 4 m/s. Find the distance to the telephone.

6. A car completes a journey in 10 minutes. For the first half of the distance the speed was 60 km/h and for the second half the speed was 40 km/h. How far is the journey?

7. A lemming runs from a point A to a cliff at 4 m/s, jumps over the edge at B and falls to C at an average speed of 25 m/s.
   If the total distance from A to C is 500 m and the time taken for the journey is 41 seconds, find the height BC of the cliff.

   → 4m/s
   A   •B

   25m/s

   |C
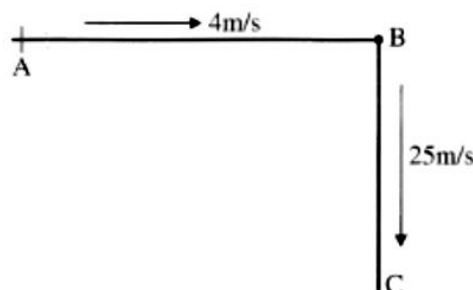
8. A bus is travelling with 48 passengers. When it arrives at a stop, x passengers get off and 3 get on. At the next stop half the passengers get off and 7 get on. There are now 22 passengers. Find x.

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9. A bus is travelling with 52 passengers. When it arrives at a stop, y passengers get off and 4 get on. At the next stop one third of the passengers get off and 3 get on. There are now 25 passengers. Find y.

10. Mr Lee left his fortune to his 3 sons, 4 daughters and his wife. Each son received twice as much as each daughter and his wife received £6000, which was a quarter of the money. How much did each son receive?

11. In a regular polygon with n sides each interior angle is $180 - \dfrac{360}{n}$ degrees. How many sides does a polygon have if each angle is $156°$?

12. A sparrow flies to see a friend at a speed of 4 km/h. His friend is out, so the sparrow immediately returns home at a speed of 5 km/h. The complete journey took 54 minutes. How far away does his friend live?

13. Consider the equation $an^2 = 182$ where a is any number between 2 and 5 and n is a positive integer. What are the possible values of n?

14. Consider the equation $\dfrac{k}{x} = 12$ where k is any number between 20 and 65 and x is a positive integer. What are the possible values of x?

15.[†]

29 cm

23 cm

x

x
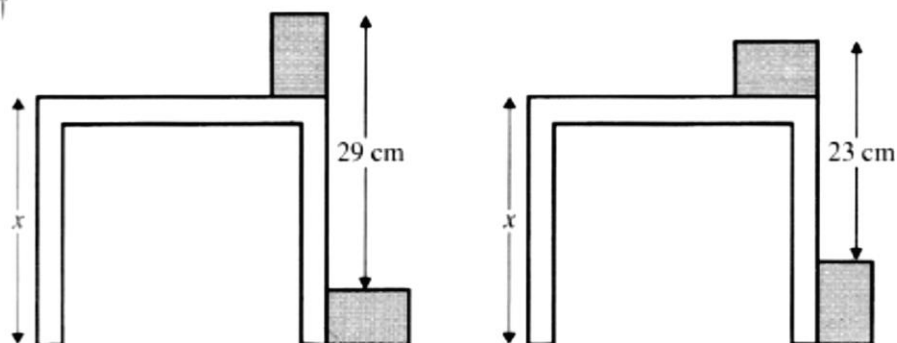
The diagrams show a table with two identical wooden blocks. Calculate the height of the table, x.