<u>Exercise 1</u>

1. The width of a rectangle is one third of the length. If the perimeter is 96 cm, find the width.

2. If AB is a straight line, find x.
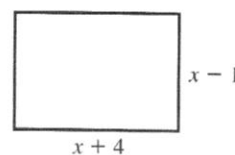   (The angles on a straight line add to 180°.)
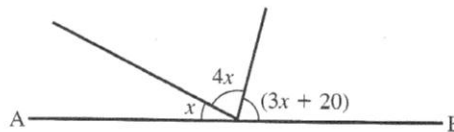
3. If the perimeter of the triangle is 22 cm, find the length of the shortest side.
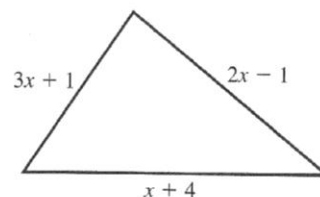
4. If the perimeter of the rectangle is 34 cm, find x.

5. The difference between two numbers is 9.
   Find the numbers, if their sum is 46.

6. The three angles in a triangle are in the ratio $1:3:5$. Find them.

   Angles in a triangle add to 180°.

7. The three angles in a triangle are in the ratio $3:4:5$. Find them.

8. The product of two consecutive odd numbers is 10 more than the square of the smaller number. Find the smaller number.

9. The product of two consecutive even numbers is 12 more than the square of the smaller number. Find the numbers.

10. The sum of three numbers is 66. The second number is twice the first and six less than the third. Find the numbers.

11. The sum of three numbers is 28. The second number is three times the first and the third is 7 less than the second. What are the numbers?

12. David weighs 5 kg less than John, who in turn is 8 kg lighter than Paul. If their total weight is 197 kg, how heavy is each person?

13. Brian is 2 years older than Bob who is 7 years older than Mark. If their combined age is 61 years, find the age of each person.

14. Richard has four times as many marbles as John. If Richard gave 18 to John they would have the same number. How many marbles has each?

15. Stella has five times as many books as Tina.
    If Stella gave 16 books to Tina, they would each have the same number. How many books did each girl have?

16. The result of trebling a number is the same as adding 12 to it. What is the number?

17. Find the area of the rectangle if the perimeter is 52 cm.
    (The perimeter is the distance around the edge of the rectangle.)
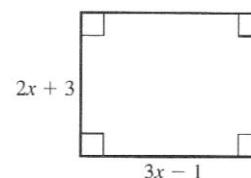
18. The result of trebling a number and subtracting 5 is the same as doubling the number and adding 9. What is the number?

19. Two girls have $76 between them. If the first gave the second $7 they would each have the same amount of money. How much did each girl have?

20. A tennis racket costs $12 more than a hockey stick. If the price of the two is $31, find the cost of the tennis racket.

1. Every year a man is paid \$500 more than the previous year. If he receives \$17 800 over four years, what was he paid in the first year?

2. A man buys x cans of beer at 30 cents each and $(x + 4)$ cans of lager at 35 cents each. The total cost was \$3·35. Find x.

3. The length of a straight line ABC is 5 m. If AB : BC = 2 : 5, find the length of AB.

4. The opposite angles of a cyclic quadrilateral are $(3x + 10)°$ and $(2x + 20)°$. Find the angles.

   Opposite angles of a cyclic quadrilateral add to 180°.

5. The interior angles of a hexagon are in the ratio 1 : 2 : 3 : 4 : 5 : 9. Find the angles. This is an example of a concave hexagon. Try to sketch the hexagon.

   Interior angles of a hexagon add to 720°.

6. 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.

7. 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.

8. 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?

9. 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.

10. 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.

11. 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.

12. 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?

13. 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 interior angle is 156°?

14. 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?

15. 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?

16. 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?