



Problem Solving

- 49 A man 6 feet tall stands at a distance of 10 feet from a lamp post. The lamp is 12 feet above the ground. How long will the mans shadow be ?
- 50 A boy has as many sisters as brothers, but each sister has only half as many sisters as brothers. How many boys and how many girls are there in the family ?
- 51 If twenty people on parting all shake hands with each other once, how many handshakes will there be altogether.
- 52 Show that six sixes can equal 144.
- 53 The sum of two numbers is 50. Find the numbers so that their product is a maximum..
- 54 Instead of walking along the two sides of a rectangle, one can also proceed along a diagonal, and thereby decrease the total distance travelled by one third of the length of the longer side of the rectangle. What is the ratio of the length to the width of the rectangle ?
- 55 A number of teams entered a competition and each team played once against every other team. The total number of matches played was 66. How many teams entered the competition ?
- 56 A number is made up of two digits whose sum is 9. If this number is now divided into the number made up of the same digits but in reverse order the result is six-fifths. Find the number.
- 57 At a dog show, there were a number of dogs and people, and between those present there were 400 heads and 1042 legs. How many dogs were at the show ?

- 58 The same number is added to both the numerator and the denominator of the fraction nineteen twenty-fifths. If the fraction is then equal to five sixths, find the number added.
- 59 There are 261 people in a village. There are 7 more men than women and 16 more children than men. How many men are there ?
- 60 A swimming pool is 30m long by 10 m wide. The water at the shallow end is 1m deep and at the deep end, 2m deep. The pool gradually gets deeper from 10m from the shallow end and is at its full depth at 10 m from the deep end. How many litres does the pool hold ?
- 61 A speedometer gives a correct reading when tyres of circumference 180 cm are used. If oversize tyres of circumference 190 cm are fitted, what is the true length of a journey which is recorded as 50 km.
- 62 If it takes 5 men 3 days to build 2 cars, how long will it take 45 men working at the same rate to build 30 cars ?
- 63 One million seconds is about how long? (Answer to the nearest day, month or year.)
- 64 A one metre square sheet of cardboard is cut into the maximum number of squares of side one millimetre. If the squares could be laid side by side, how far, (in metres) would they stretch?
- 65 In a school of 30 boys and 20 girls entered a competition. Prizes were awarded to 10% of the boys and 20% of the girls. Find the total percentage of entrants that received prizes?
- 66 A fence runs north-south. A bird leaves its position P on the fence and flies due north for one kilometre, then west for two kilometres, then due north again for half a kilometre. Finally, it flies south-east. How far north or south of P does it cross the line of the fence?
- 67 At the end of 1983 the average rainfall in Perth for the ten year period just ended was 631 mm. A year later the ten year average was 601 mm, and 450 mm had fallen in 1984. What was the rainfall, in millimetres, in 1974?
- 68 I walk at 4 km/hr and run at 6 km/hr. I find that I can save three and three quarter minutes by running instead of walking to the station. How far is it from my house to the station?

69 An upholsterer purchased some fabric for \$240. If she had bought from another supplier who charged \$4 per metre, she would have got 3 m less for the same amount of money. How many metres did she purchase?

70 What are the last two digits of 2^{222} ?

71 John has a rectangular paved area in his yard. He increases both the length and the width of this paved area by 20%. What is the percentage increase in the paved area?

72 A basketball team knows that it must win at least 60% of all its games in order to qualify for the finals. After 8 games it has only won 50 % of its games, with 12 games remaining. What is the minimum percentage of these remaining games that the team must win in order to qualify for the finals?

73 A sculpture consists of three large cubes, sitting, without overhang, one upon the other. It is to have its exposed surfaces painted bright yellow after being placed in the centre of Perth. The largest cube sits flat on the ground and has side length of 3 metres. The other two have side lengths of 2 and 1 metres respectively. One tin of paint is needed to cover each square metre. How many tins of paint are required?

74 The sum of three consecutive odd numbers is 27. What is the smallest of the three numbers?

75 The average of six numbers is 4. A seventh number is added and the new average is 5. What is the seventh number?