

SHORT PUZZLES

- 1. Fifty minutes ago if it was four times as many minutes past three o'clock, how many minutes is it to six o'clock?
- 2. A family I know has several children. Each boy in this family has as many sisters as brothers but each girl has twice as many brothers as sisters. How many brothers and sisters are there?
- 3. While visiting a small town in the United States, lost my overcoat in a bus. When I reported the matter to the bus company I was asked the number of the bus. Though I did not remember the exact number I did remember that the bus number had a certain peculiarity about it. The number plate showed the bus number was a perfect square and also if the plate was turned upside down, the number would still be a perfect square—of course, it was not? I came to know from the bus company they had only five hundred buses numbered from I to 500. From this I was able to deduce the bus number Can you tell what was the number?
- 4. We all know that the hour hand and the minute hand on a clock travel at different speeds. However, there are certain occasions when they are exactly opposite each other. Can you give a simple formula for calculating the times of these occasions'
- 5. Supposing a clock takes 7 seconds to strike 7. How long will the same clock take to strike 10?
- 6. A wholesale merchant came to me one day and posed this problem. Every day in his business he had to weigh amounts from one pound to one hundred and twenty-one pounds, to the nearest pound. To do this, what is the minimum number of weights he needs and how heavy should each weight be?
- 7. There is a number which is very peculiar. This number is three times the sum of its digits. Can you find the number?
- It is a small town railway station and there are 25 stations on that line. At each of the 25 stations the passengers can get tickets for any of the other 24 stations.
 How many different kinds of tickets do you think

the booking clerk has to keep?

9. We have a circular dining table made of marble which had come down to us as a family heirloom. We also have some beautiful bone-china saucers that I recently brought from Japan. Diameter of. our table top is fifteen times the diameter of our saucers which are also circular. We would like to place the saucers on the table so that they neither overlap each other nor the edge of the table. How many can we place in this manner?

10. My room has a square window of 4 feet across and 4 feet down. I decided to get only half the area of

the window painted. Even after the painting I found that the clear part of the window still remained a square and still measured 4 feet from top to bottom and 4 feet from side to side. How is it possible?

- 11. There is a number, the second digit of which is smaller than its first digit by 4, and if the number was divided by the digits' sum, the quotient would be 7. Can you find the number?
- A factory manufacturing flywheels for racing cars has ten machines to make them. The manufacturer knows the correct weight for a flywheel. However, one day one of the machine begins to produce faulty parts-either overweight or underweight. How can the manufacturer find the faulty machine in only two weighings?
- 13. The product of three consecutive numbers when divided by each of them in turn the sum of the three quotients will be 74. What are the numbers?
- 14. Some years back I was travelling by a cargo ship from New Zealand to Tahiti. I was curious to look around the ship one day, and in the boiler room I asked a man how old the ship was. He smiled and replied in this way: The ship is twice as old as its boiler was when the ship was as old as the boiler is now. And the combined age of the ship and the boiler is thirty years.'

Can you figure out what is the age of the ship and of the boiler?

- 15. We have three containers which hold 19, 13 and 7 ounces of liquid respectively. The 19 ounce container is empty but the 13 and 7 ounces containers are full. How can we measure out 10 ounces by using only the three above mentioned containers?
- 16. One morning I was on my way to the market and met a man who had 4 wives. Each of the wives had 4 bags, containing 4 dogs and each dog had 4 puppies. Taking all things into consideration. How many were going to the market?
- 17. Mammu wears socks of two different colours white and brown. She keeps them all in the same drawer in a state of complete disorder. She has altogether 20 white socks and 20 brown socks in the drawer. Supposing she has to take out the socks in the dark, how many must she take out to be sure that-she has a matching pair?
- While driving through the countryside one day I saw a farmer tending his pigs and ducks in his yard. I was curious to know how many of each he had. I stopped the car and inquired. Leaning on the stile jovially, he replied,, 'I have altogether 60 eyes and 86 feet between them'.

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I drove off trying to calculate in my mind the exact number of ducks and pigs he had. What do you think is the answer?

- 19. Little Mammu was playing marbles with her friend Nawal I heard her say to him, 'if you give me one of your marbles I'll have as many as you.' Nawal replied, if you give me one of your marbles. and I'll have twice as many as you.' I wondered how many marbles each had! What do you think?
- 20. There is a number whose double is greater than its half by 45. Can you find this number?
- 21. A heavy tree trunk can be sawed into a 12 ft long piece in one minute. How long will it take to saw it into twelve equal pieces?
- 22. I entered a store and spent one-half of the money that was in my purse. When I came out I found that I had just as many paise as I had -rupees and half as many rupees as had paise when I went in. How much money did I have with me when I entered?
- 23. Bacteria is known to multiply very rapidly. A certain container contains just one bacteria on the first day and there are twice as many on the next day. In this manner the number of bacteria in the container doubles itself everyday. Assuming that the container would be full of bacteria on the 10th clay, on which day would the container be half full.
- 24. I had Rs. 1.15 in my purse in 6 coins, but I found that I could not give change for a rupee. half a rupee. quarter rupee, ten paise or five paise. Which 6 coins did I have?
- 25. Recently I met a woman I hadn't seen for a long time. In the course of conversation she said. Do you know something funny? If you reverse my own age the figures represent my husband's age. He is,of course, senior to me and the difference between our age is one-eleventh of their sum. Can you find out the woman's age as well as her husband's age?
- 26. Twenty-five dots are arranged in a square formation in 5 rows of 5, as shown in the sketch:

*	×	*	*	*
*	*	*	*	*
*	*	*	*	*
*	*	*	*	*
*	*	*	*	*

Can you connect 12 of these dots with straight lines to form a perfect cross which has five dots inside it and 8 dots outside?.

27. If 5 tyres were used on a car which has travelled 20,000 miles. how many miles did each tyre sustain, if all the tyres were used equally in sustaining this mileage?

- 28. There are two whole numbers, difference of their squares is a cube and the difference of their cubes is a square. These are the smallest possible numbers. Can you find the numbers?
- 29. A singles tennis tournament is held in which 30 men participate. If a player is eliminated as soon as he loses a match, how many matches are required to determine the winner?
- 30. Can you find the largest possible number containing any 9 of the 10 digits. considering 0 also as a number that is divisible by 11 without a remainder.
- 31. In the illustration below, how many squares are there?



- 32. Can you find four numbers such that the sum of every two and the sum of all four may be perfect squares?
- 33. While house hunting in London, I came across a very good leasehold property Discussing the lease the landlady told me:

`The property was originally on a 99 years lease and two-thirds of the time passed is equal to fourfifths of the time to come. Now work it out for yourself and see how many years are there to go!'

Solution:

- 1. 26 Minutes
- 2. 4 boys and 3 girls
- 3. 196
- 4. Minutes past twelve $Y = \frac{30}{11}[(n-1)2 + 1]$ Where n is the next hour
- 5. 7/6 sec
- 6. 1, 3, 9, 27 and 81 pounds
- 7. The number is 27, 2 + 7 = 9, 9x3 = 27
- 8. 600 tickets
- 9. 187
- 10. Measure 4 from top to bottom and from side to side.
- 11. The number is 84
- 12. He must take 1 flywheel from machine number one, 2 flywheels from machine number two and so fourth, and weigh these against the correct weight for that number of parts.
- 13. 4, 5 and 6
- 14. The boiler = 90/7 years and the ship = 120/7 years
- 15. The following would be the procedure in chart form:

Steps	19	13	7 Ounces
-	Ounces	Ounces	
	0	13	7
Step 1	7	13	0
Step 2	19	1	0
Step 3	12	1	7
Step 4	12	8	0
Step 5	5	8	7
Step 6	5	13	2
Step 7	18	0	2
Step 8	18	2	0
Step 9	11	2	7
Step 10	11	9	0
Step 11	4	9	7
Step 12	4	13	3
Step 13	17	0	3
Step 14	17	3	0
Step 15	10	3	7

- 16. Just myself! Only I was going to the market and I met all the others coming from the opposite direction.
- 17. 3 socks
- 18. 13 pigs and 17 ducks
- 19. 5 marbles and Nawal 7
- 20. 30
- 21. 11 minutes
- 22. Rs. 99.98
- 23. 9th day
- 24. I had one 50 paise coin, one 25 paise coin and four 10 paise coins.
- 25. Woman's age = 45 years and Husband's age = 54.



- 26. $\cdot \lor \cdot \lor \cdot$ 27. Each tyre used for 16000 miles.
- 28. 4 and 28
- 29. 29 matches
- 30. 987652413
- 31. 30 squares
- 32. 10430, 3970, 2114, 386
- 33. 45 years



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