

Factors, Multiples & Reasoning

1. A number has exactly 6 factors. It is less than 50. What could the number be? Explain your reasoning.
2. Ben says that 36 is a common multiple of 4 and 9. Is he correct? How do you know?
3. Find a number between 30 and 60 that has more than 8 factors. Show how you found them.
4. A number is divisible by 2, 3, and 5 but not by 4. What could it be? Give two possibilities.

Square Numbers & Logic

5. A square number has two digits. The sum of its digits is 9. What could the number be?
6. Lily says that all square numbers have an odd number of factors. Is she right? Explain with examples.
7. Find two square numbers that add up to 100. Can you find more than one pair?
8. A square number is also a multiple of 3. What could it be? Give three examples.

Cube Numbers & Reasoning

9. Which cube number is closest to 100? How do you know?
10. Is 512 a cube number? Explain how you can check without a calculator.
11. Find a cube number that is also a square number. What is special about it?
12. A cube number has digits that add up to 10. What could it be?

Mixed Reasoning

13. A number is a multiple of 6 and a square number. It is less than 100. What could it be?
14. Write a number that has exactly 3 different prime factors. What is the smallest possible number?
15. A number is both a factor of 72 and a multiple of 6. What could it be?

16. A sequence goes: 1, 8, 27, 64... What type of numbers are these? What would the next number be?

17. A number is square and ends in 6. Is this possible? Why or why not?