

Pack A • Fluency

Answer all questions. Show your working. Questions are grouped by challenge level.

BRONZE

Questions 1–10

1. Fill in the missing digit: $3_7 + 285 = 632$. Which digit is missing and in which place? Justify your answer.

2. Round 2364 to the nearest hundred and name the digit that decided the rounding. Justify.

3. If $523 - ?? = 355$, what is the missing number? Show how you would check your answer.

4. Without fully calculating, decide: is 34×6 closer to 180 or 210? Justify.

5. Is 4728 divisible by 4? Use short division to check. Show your working and state whether there is a remainder.

6. Is 84 divisible by 4? Use short division to find out. Show enough working to be sure.

7. Find ONE factor of 36 (other than 1 and 36) and justify that it is a factor.

8. Which is the smallest multiple of 7 that is greater than 40? Justify.

9. Is 91 a prime number? Justify with at least one trial division.

10. Without working out the exact value of 9^2 , decide: is 9^2 greater or less than 100? Justify.

11. Round 3467 to the nearest ten.

12. Calculate $2847 + 1965$.

13. Calculate $5023 - 2648$.

14. Calculate $1848 \div 7$.

15. Work out $5 + 3 \times 8$ using the correct order of operations.

16. Find the HCF of 24 and 36.

17. Find the LCM of 6 and 8.

18. What is 4 cubed? Write n^3 .

19. Write 28 as a product of prime factors.

20. Each notebook costs £3. How much do 14 notebooks cost?

21. Work out $(5 + 7) \times 4 - 18 \div 3$.

22. Find the HCF of 12, 18 and 30.

23. Express 84 as a product of prime factors in index form.

24. Work out $\sqrt[3]{n}$.

25. Without calculating exactly, decide which is larger: 23×24 or 22×25 . Explain your reasoning.

26. Calculate $b^2 \times 3$.

27. Find a number that is both a multiple of 6 and a factor of 60.

28. Estimate 47×18 by rounding each number to 1 significant figure.

29. Apples cost 35p each. Oranges cost 50p each. Sam buys 4 apples and 3 oranges and pays with a £5 note. How much change does he receive?

30. Work out $(7^2 - 4) \div 5 + 6$.

31. Given $p = 2^3 \times 3 \times 5$ and $q = 2^2 \times 3^2 \times 7$, find the HCF and LCM of p and q .

32. Find the largest prime factor of 180.

33. In the multiplication below, each letter stands for a different digit. Find A and B.

$$\overline{4A} \times 3 = \overline{14B}$$

34. Two whole numbers have HCF = 6 and LCM = 60. Find all possible pairs of numbers.

35. Is 91 a prime number? Show your reasoning.

36. A number satisfies all of these: it is two-digit, it is prime, and the sum of its digits is 7. Find all such numbers.

37. Two whole numbers a and b satisfy $a \times b = 56$ and $a + b = 15$, with $a > b$. Find a and b .

38. Explain why the product of any two consecutive even numbers is always divisible by 8.

39. Work out $(9^2 - (2 + 3)^2) \div ((9 - 2 - 3) \times 4)$.

40. A school raises £1800 for a trip. Transport costs £480. The remaining money is split equally among 24 students. Each student pays £15 on top of their share. How much does each student have in total to spend?
