

GCSE Foundation Mathematics

Practice Test 3 : Numbers

Instructions:

Answer all questions. Show your working clearly.

Calculators may be used unless stated otherwise.

Time allowed: 90 minutes

Section A: Place Value

1. Write these numbers in order from smallest to largest:

8.4, 8.04, 8.404, 8.044

2. What is the value of the digit 6 in each of these numbers?

(a) 926,473

(b) 0.0063

(c) 14.26

3. Round 52.638 to:

(a) 1 decimal place

(b) 2 significant figures

(c) the nearest whole number

4. Circle the larger number in each pair:

(a) 0.3 or 0.29

(b) 4.106 or 4.16

(c) 0.009 or 0.09

Section B: Integer Arithmetic

5. Calculate:

(a) $(-14) + 21$

(b) $(-18) - (-11)$

(c) $(-9) \times (-7)$

(d) $(-72) \div 8$

6. Work out:

(a) 43×28 (without calculator)

- (b) $945 \div 27$
(c) $(-8) + (-13) - 9$
7. Estimate the value of $\frac{387 \times 72}{23}$ by rounding each number to 1 significant figure.
8. The temperature at 8pm was -5°C . Overnight it dropped by 6°C , then by midday it had risen by 12°C . What was the temperature at midday?

Section C: Fractions, Decimals, and Percentages

9. Simplify these fractions:
- (a) $\frac{18}{30}$
(b) $\frac{35}{56}$
(c) $\frac{40}{64}$
10. Put these fractions in order from smallest to largest:
- $$\frac{5}{8}, \quad \frac{2}{3}, \quad \frac{3}{4}, \quad \frac{7}{12}$$
11. Convert:
- (a) $\frac{7}{8}$ to a decimal
(b) 0.56 to a fraction in its simplest form
(c) $\frac{11}{20}$ to a percentage
(d) 85% to a fraction in its simplest form
12. Calculate:
- (a) 35% of 72
(b) 22% of 450 kg
(c) What percentage is 21 out of 84?
13. A bicycle costs 180 before a 25% discount. What is the sale price?
14. The membership of a club increases from 750 to 825. What is the percentage increase?
15. Work out:
- (a) $\frac{5}{6} + \frac{1}{8}$
(b) $\frac{9}{10} - \frac{2}{5}$
(c) $\frac{4}{7} \times \frac{3}{8}$
(d) $\frac{5}{6} \div \frac{2}{9}$

Section D: Factors, Multiples, and Primes

16. List all the factors of 48.
17. List the first five multiples of 9.
18. Which of these numbers are prime?
- $$14, \quad 17, \quad 22, \quad 31, \quad 35, \quad 37$$
19. Write 72 as a product of its prime factors.

20. Find:

- (a) The HCF of 28 and 42
- (b) The LCM of 18 and 24

21. Find the HCF and LCM of 36 and 54.

Section E: Ratio and Proportion

22. Simplify these ratios:

- (a) $18 : 24$
- (b) $20 : 30 : 50$
- (c) $1.2 : 2.4$

23. Share 210 in the ratio 4 : 3.

24. The ratio of red to blue marbles in a jar is 6 : 5. If there are 30 red marbles, how many blue marbles are there?

25. A recipe for 4 people needs 320g of rice. How much rice is needed for 10 people?

26. 6 magazines cost 8.40. How much do 9 magazines cost?

27. It takes 5 printers 12 hours to complete a job. How long would it take 8 printers to complete the same job?

28. w is directly proportional to z . When $z = 9$, $w = 36$. Find w when $z = 15$.

29. r is inversely proportional to s . When $s = 6$, $r = 18$. Find r when $s = 9$.

Section F: Number Operations

30. Calculate:

- (a) $4.6 + 3.27$
- (b) $8.3 - 4.85$
- (c) 5.4×3.2
- (d) $8.4 \div 1.4$

31. Work out:

- (a) $3\frac{2}{5} + 2\frac{1}{6}$
- (b) $5\frac{1}{4} - 2\frac{5}{8}$
- (c) $1\frac{3}{7} \times 2\frac{1}{3}$

32. A bakery sells bread at 2.40 per loaf. How much do 4.5 loaves cost?

33. Find $\frac{5}{8}$ of 64.

34. What is 45% of 3.2 hours in minutes?

35. Calculate the value of $\frac{4.8 \times 25}{1.6}$.

Section G: Standard Form

36. Write these numbers in standard form:

- (a) 5900
- (b) 0.0062
- (c) 470,000
- (d) 0.000093

37. Write these numbers in ordinary form:

- (a) 6.3×10^5
- (b) 2.9×10^{-2}
- (c) 1.47×10^4
- (d) 9.2×10^{-7}

38. Calculate, giving your answer in standard form:

- (a) $(4 \times 10^6) \times (2 \times 10^3)$
- (b) $(1.2 \times 10^8) \div (3 \times 10^5)$
- (c) $(5 \times 10^{-4}) + (3 \times 10^{-4})$

39. A computer can perform 2.5×10^9 calculations per second. How many calculations can it perform in 4×10^2 seconds? Give your answer in standard form.

Section H: Problem Solving

- 40. A streaming service costs £12 per month plus 15p per hour for premium content. In one month, Emma watches 80 hours of premium content. What is her total bill?
- 41. A rectangular lawn is 18 metres long and 12 metres wide. The owner wants to increase both dimensions by 30%. What will be the new area of the lawn?
- 42. In a warehouse sale, all prices are reduced by 30%. A laptop originally costs £560. After the sale, there is a further 8% reduction for students. What is the final price of the laptop?
- 43. A swimming pool holds 800 litres when full. If $\frac{5}{8}$ of the pool is full, how many litres need to be added to fill it completely?
- 44. The ratio of the heights of two buildings is 5:8. If the shorter building is 25 metres tall, what is the height of the taller building?
- 45. A cyclist travels 120 km in 4 hours. At this rate, how far will they travel in 6.5 hours?
- 46. £900 is invested at 5% simple interest per year. How much interest is earned after 2 years?
- 47. A recipe serves 8 people and uses 560g of flour. How much flour is needed to serve 12 people?

Answer Space

Use this space for your working and answers.

END OF TEST

Total marks: 100

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