

GRADE 7 MATHS

Maths Games, Logic & Puzzles

Complete Printable Worksheet Pack

6 Worksheets • Brain Games • Number Logic • Sudoku • Deduction • Magic Squares • Strategy • Riddles •
Challenge Problems

Worksheet 1: Number Logic & Brain Games

Name: _____ Date: _____

1. Find the next two terms: 3, 7, 15, 31, 63, ____, ____.
2. I am a two-digit number. My tens digit is 3 more than my ones digit. My digits add to 11. What number am I?
3. Use the digits 2, 4, 6 and 8 exactly once to make the greatest possible 4-digit number divisible by 4.
4. A number is divisible by 6 and 5, is greater than 40 and less than 80. List all possibilities.
5. Find the missing number: $4 \rightarrow 20$, $7 \rightarrow 56$, $9 \rightarrow 90$, $12 \rightarrow ?$
6. A number has exactly 3 positive factors and is between 20 and 40. Find all possible numbers.
7. Use +, -, $\times$ or $\div$ and the numbers 8, 3, 2 exactly once to make 10.
8. A two-digit number is 4 times the sum of its digits. The tens digit is twice the ones digit. Find the number.
9. Find the smallest positive integer that leaves remainder 2 when divided by 5 and remainder 1 when divided by 3.
10. A magic total is 30. Place 6, 8 and 16 in three boxes so their total is 30. What other number must be used if one box currently contains 6 and another contains 8?

Answer Key — Worksheet 1

1. 127, 255.
2. 74.
3. 8624.
4. 60.
5. 156, because $n(n+1)$.
6. 25.
7. No solution using only $+$, $-$, $\times$, $\div$ exactly once.
8. No two-digit solution; the conditions are inconsistent.
9. 17.
10. 16.

Worksheet 2: Sudoku & Deduction

Name: _____ Date: _____

1. Complete the 4×4 Sudoku. Each row, column and 2×2 box must contain 1–4 once.

1	2		
3		1	
	1	4	3
4			1

2. In a 4×4 Sudoku, a row contains 1, 2, 3 and a blank. What is the blank?
3. A number puzzle has four boxes. The first is 7, the second is 14, the third is 28. If the rule is $\times 2$, what is the fourth?
4. Four students—Asha, Ben, Cara and Dev—each chose one different club: Art, Chess, Music, Science. Asha did not choose Art or Music. Ben chose Science. Cara did not choose Chess. Who chose which club?
5. Three boxes are labelled Apples, Oranges and Mixed, but every label is wrong. You may take one fruit from one box. Which labelled box should you choose to identify all three boxes?
6. A code uses A=1, B=2, ..., Z=26. What is the value of MATH?
7. A secret number is greater than 20, less than 50, even, and divisible by 3. It is not divisible by 4. What numbers are possible?
8. Five friends stand in a line. Riya is before Sam. Tina is after Sam. Uma is before Riya. Vik is after Tina. Give one possible order.
9. A clock shows 3:00. Through what angle does the minute hand move by 3:30?
10. If today is Wednesday, what day will it be 100 days from today?

Answer Key — Worksheet 2

1. One valid completed grid: 1 2 3 4 / 3 4 1 2 / 2 1 4 3 / 4 3 2 1.
2. 4.
3. 56.
4. The clues do not uniquely determine a full assignment; one valid assignment is Asha=Chess, Ben=Science, Cara=Art, Dev=Music.
5. Choose the box labelled Mixed; because its label is wrong, it must contain only apples or only oranges.
6. 42.
7. 30 and 42.
8. Uma, Riya, Sam, Tina, Vik.
9. 180° .
10. Friday.

Worksheet 3: Magic Squares, Codes & Patterns

Name: _____ Date: _____

1. Verify this 3×3 magic square: 8,1,6 / 3,5,7 / 4,9,2. Check every row, column and diagonal.
2. In the same square, what is the sum of the two diagonals?
3. A code changes each number n to $3n-2$. Decode the outputs 10, 19 and 28 by finding their original inputs.
4. A pattern starts 2, 6, 12, 20, 30. Find the next two terms and describe the rule.
5. A sequence is 5, 10, 20, 40, 80. What is the 8th term?
6. Find the missing term: 1, 4, 9, 16, __, 36.
7. A number machine doubles an input and then subtracts 7. What output comes from 18?
8. A code word is shifted one letter forward in the alphabet. Decode DBU.
9. A magic square has magic total 34. If a row contains 7, 16 and x , find x .
10. Find a number that is both a square number and a cube number between 1 and 500.

Answer Key — Worksheet 3

1. Every row, column and diagonal totals 15.
2. 30.
3. 4, 7, 10.
4. 42, 56; rule $n(n+1)$.
5. 640.
6. 25.
7. 29.
8. CAT.
9. 11.
10. 64.

Worksheet 4: Strategy & Target Games

Name: _____ Date: _____

1. Target 24: use 6, 6, 4 and 1 exactly once with +, −, × or ÷. Find one solution.
2. Target 50: use 5, 5, 2 and 1 exactly once with +, −, × or ÷. Find one solution.
3. A game starts at 0. On each turn you may add 3 or 5. Can you reach exactly 22? Give a sequence.
4. You start with 2. Each move is either +4 or ×3. Can you reach 38 in exactly three moves?
5. A number game chooses 1–20. The winner is closest to 15 without going over. Choices are 9, 13, 16, 15 and 12. Who wins?
6. Start at 5. Repeatedly double or add 10. Give a sequence reaching 100.
7. A team earns 3 points for a win and 1 for a draw. It has 23 points from 9 games. Give one possible record.
8. Ten counters are on a table. Players remove 1, 2 or 3 each turn; the player taking the last wins. Give a winning first move and strategy.
9. Target 31: use 7, 5 and 2 exactly once with +, −, × or ÷. Is there a solution?
10. A game pays \$12 with probability $\frac{1}{4}$ and \$0 otherwise. What is the expected prize?

Answer Key — Worksheet 4

1. $6 \times 4 + 6 - 6 = 24$.
2. $5 \times 5 \times 2 \times 1 = 50$.
3. Yes: $5 + 5 + 3 + 3 + 3 + 3 = 22$.
4. No. Checking the possible three-move paths gives 22, 30, 34, 46 or 54, not 38.
5. 15.
6. $5 \rightarrow 10 \rightarrow 20 \rightarrow 40 \rightarrow 50 \rightarrow 100$.
7. 7 wins, 2 draws, 0 losses gives 23 points.
8. Remove 1, leaving 9; then mirror each opponent move so each pair totals 4.
9. No solution under the stated operations and use-once rule.
10. \$3.

Worksheet 5: Logic Puzzles & Mathematical Riddles

Name: _____ Date: _____

1. I am a number between 30 and 60. I am divisible by 4 and 7. What am I?
2. Three consecutive integers have a sum of 72. Find them.
3. A farmer has chickens and rabbits. There are 12 animals and 32 legs altogether. How many chickens and rabbits?
4. A rectangle has perimeter 50 cm. Its length is 3 cm more than its width. Find both dimensions.
5. A two-digit number has digits whose product is 24 and sum is 10. Find both possible numbers.
6. A number is multiplied by 4, then 8 is subtracted. The result is 52. Find the number.
7. Four identical notebooks and one pen cost \$26. Two notebooks and one pen cost \$14. Find each price.
8. A train is 120 m long and passes a pole in 8 seconds. Find its speed in m/s.
9. A class has 28 students. There are 4 more girls than boys. Find boys and girls.
10. A square and rectangle have the same perimeter of 40 cm. The rectangle is 12 cm by 8 cm. Find the square's area and compare.

Answer Key — Worksheet 5

1. 56.
2. 23, 24, 25.
3. 8 chickens and 4 rabbits.
4. Width 11 cm; length 14 cm.
5. 46 and 64.
6. 15.
7. Notebook \$6; pen \$2.
8. 15 m/s.
9. 12 boys and 16 girls.
10. Square area 100 cm^2 ; rectangle area 96 cm^2 ; square is 4 cm^2 larger.

Worksheet 6: Ultimate Maths Challenge

Name: _____ Date: _____

1. Find the smallest positive number divisible by 6, 8 and 15.
2. A number has exactly four positive factors. Give one example between 20 and 40 and list its factors.
3. The mean of five consecutive integers is 18. Find them.
4. A bag contains 4 red, 5 blue and 3 green counters. Two are chosen without replacement. Find $P(\text{both blue})$.
5. A rectangle has area 240 cm^2 and its length is 4 cm more than its width. Find its dimensions.
6. A journey has two equal-distance halves. The first is at 40 km/h and the second at 60 km/h. Find the true average speed.
7. A price is increased by 20% and then discounted by 20%. Original price \$250. Find final price.
8. Find the next term: 2, 5, 11, 23, 47, _____. State the rule.
9. A six-number data set has mean 12. Five values are 7, 9, 11, 14 and 17. Find the sixth value.
10. A number from 1–100 is chosen at random. Find $P(\text{divisible by 4 or 6})$.

Answer Key — Worksheet 6

1. 120.
2. 27; factors 1, 3, 9, 27.
3. 16, 17, 18, 19, 20.
4. $5/12 \times 4/11 = 5/33$.
5. 12 cm by 16 cm.
6. 48 km/h.
7. \$240.
8. 95; rule $\times 2 + 1$.
9. 14.
10. 33/100.