

11+ Maths Practice Paper

Year 5 · Intermediate

Lesson 5.5: Simultaneous logic puzzles

Read this with your child:

1. This paper has **24 questions** in two parts. Work through them in order. The questions get harder as you go.
2. **Part 1** is multiple choice. Choose **one** answer, A, B, C, D or E, and mark it on the separate answer sheet by drawing a firm line through the box next to its letter. If you change your mind, rub the line out completely and mark your new answer.
3. **Part 2** asks you to write your answer. Write it in the boxes on the answer sheet, **one digit in each box**, starting from the left.
4. If a question is hard, leave it and come back to it at the end.
5. You may use rough paper for working out. You may **not** use a calculator.
6. Suggested time: **30 minutes**.

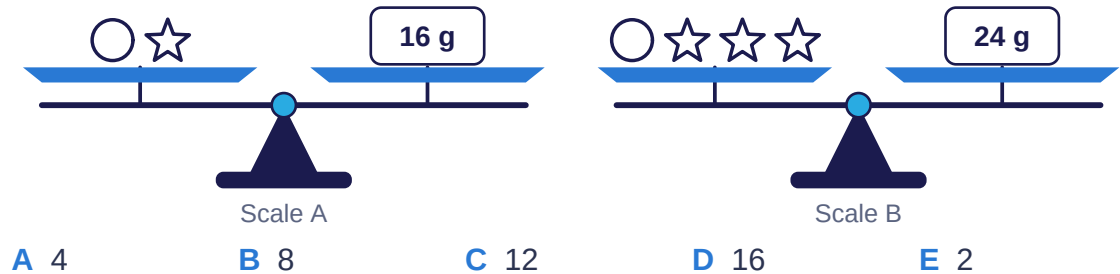
The answer sheet is after the questions. The answers, with a short explanation of each, are at the back for a parent to mark with.

These are original practice questions written by Elite Learners in the style of 11+ entrance tests. They are not produced by, or connected with, GL Assessment or Cambridge University Press & Assessment (CEM).

Example

The scales balance. Shapes that look the same weigh the same.

How many grams does a star weigh?



Answer: A Scale B has two extra stars and weighs $24 - 16 = 8$ g more. So two stars weigh 8 g, and one star weighs 4 g.

The answer, A, has already been marked on your answer sheet.

Now turn over and start Part 1.

Part 1: Multiple choice

1

Each shape stands for a whole number. The same shape always stands for the same number.

What number does the circle stand for?

$$\star + \star + \star = 21$$

$$\star + \bigcirc = 12$$

A 7

B 12

C 9

D 3

E 5

2

Each shape stands for a whole number. The same shape always stands for the same number.

What number does the triangle stand for?

$$\diamond + \diamond = 18$$

$$\diamond + \square + \square = 23$$

$$\square + \triangle = 15$$

A 7

B 9

C 6

D 8

E 15

3

Each shape stands for a whole number.

Which shape can you find first?

$$\bigcirc + \star = 21$$

$$\star + \square + \square = 16$$

$$\triangle + \triangle + \triangle = 12$$

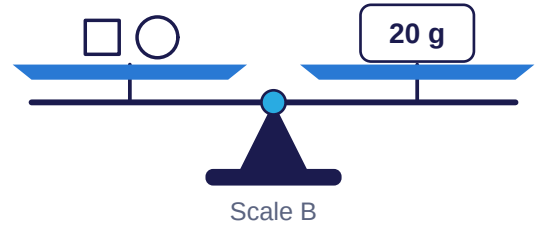
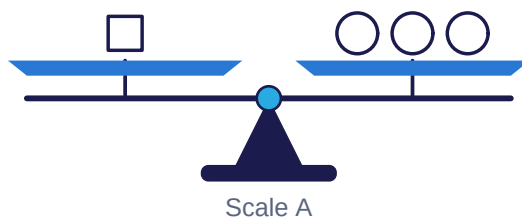
$$\bigcirc + \triangle = 19$$



4

The scales balance. Shapes that look the same weigh the same.

How many grams does a circle weigh?



A 10

B 5

C 15

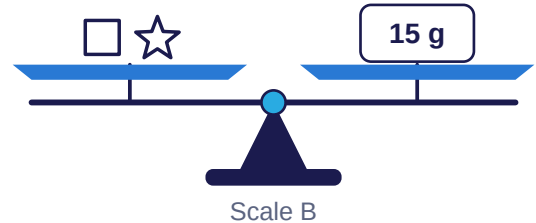
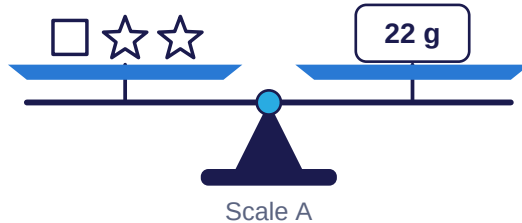
D 4

E 20

5

The scales balance. Shapes that look the same weigh the same.

How many grams does the square weigh?



A 8

B 7

C 15

D 11

E 22

6

In this grid, each shape stands for a whole number. The number at the end of each row is its total, and the number under each column is its total.

What is the missing total?

☆	☆	○	17
○	☆	○	19
○	○	○	21
19	?	21	

A 15

B 19

C 17

D 21

E 12

7

Tom is 4 years older than his sister. Their ages add up to 22.

How old is Tom?

- A 9 B 13 C 11 D 18 E 15
-

8

Two numbers add up to 36. One number is 3 times the other.

What is the bigger number?

- A 12 B 27 C 9 D 18 E 33
-

9

A farm has hens and sheep. A hen has 2 legs and a sheep has 4 legs. There are 10 heads and 32 legs.

How many sheep are there?

- A 6 B 4 C 8 D 5 E 12
-

10

Each shape stands for a whole number. The same shape always stands for the same number.

What number does the star stand for?

$$\bigcirc + \bigcirc + 5 = 19$$

$$\bigcirc + \star = 16$$

- A 7 B 14 C 9 D 11 E 5
-

11

3 apples and a pear cost 70p. 2 apples and a pear cost 52p. Every apple costs the same.

How many pence does the pear cost?

- A 16 B 18 C 52 D 34 E 22
-

12

In this grid, each shape stands for a whole number. The number at the end of each row is its total, and the number under each column is its total.

What number does the triangle stand for?

☆	☆	☆	15
☆	○	△	18
○	○	△	17
14	13	23	

A 5

B 4

C 18

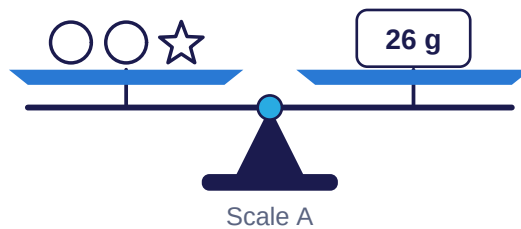
D 9

E 13

13

The scales balance. Shapes that look the same weigh the same.

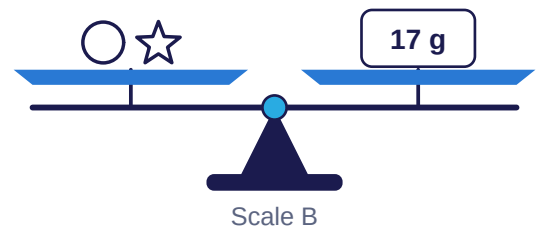
How many grams does a star weigh?



A 9

B 17

C 8



D 13

E 26

14

Two numbers add up to 50. Their difference is 14.

What is the smaller number?

A 25

B 18

C 32

D 36

E 14

15

Each shape stands for a whole number. The same shape always stands for the same number.

What number does the circle stand for?

$$\bigcirc + \star = 20$$

$$\bigcirc = \star + \star + \star + \star$$

A 16

B 4

C 5

D 10

E 20

16

A car park has cars and bikes. A car has 4 wheels and a bike has 2 wheels. There are 12 vehicles and 34 wheels.

How many cars are there?

A 7

B 6

C 5

D 8

E 4

17

In this grid, each shape stands for a whole number. The number at the end of each row is its total, and the number under each column is its total.

What is the missing total?

			20
			22
			18
	22	18	

A 22

B 18

C 24

D 20

E 14

18

A cake and a drink cost £7. Two cakes and a drink cost £11. Every cake costs the same.

How many pounds does the drink cost?

A 4

B 7

C 11

D 2

E 3

Part 2: Write your answer

19

Each shape stands for a whole number. The same shape always stands for the same number.

What number does the star stand for?

$$\diamond + \diamond + \diamond = 27$$

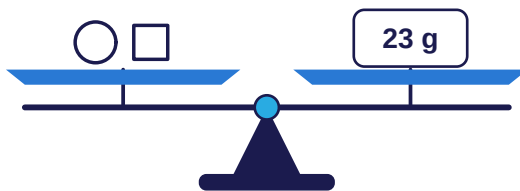
$$\diamond + \star + \star = 21$$

Write your answer in the boxes on the answer sheet, one digit in each box.

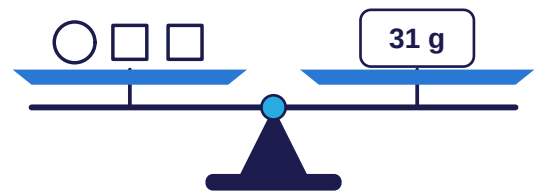
20

The scales balance. Shapes that look the same weigh the same.

How many grams does the circle weigh?



Scale A



Scale B

Write your answer in the boxes on the answer sheet, one digit in each box.

21

Two numbers add up to 64. Their difference is 18.

What is the bigger number?

Write your answer in the boxes on the answer sheet, one digit in each box.

22

A farm has hens and sheep. A hen has 2 legs and a sheep has 4 legs. There are 15 heads and 44 legs.

How many sheep are there?

Write your answer in the boxes on the answer sheet, one digit in each box.

23

Ella has 4 times as many stickers as Sam. Together they have 45 stickers.

How many stickers does Ella have?

Write your answer in the boxes on the answer sheet, one digit in each box.

In this grid, each shape stands for a whole number. The number at the end of each row is its total, and the number under each column is its total.

What is the missing total?

☆	○	○	19
○	○	○	15
☆	☆	○	?
23	19	15	

Write your answer in the boxes on the answer sheet, one digit in each box.

Answer sheet

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Name

Draw a firm line through the box next to your answer, like the example.

Part 1: Multiple choice

Ex	A ☒	B ☐	C ☐	D ☐	E ☐
1	A ☐	B ☐	C ☐	D ☐	E ☐
2	A ☐	B ☐	C ☐	D ☐	E ☐
3	A ☐	B ☐	C ☐	D ☐	E ☐
4	A ☐	B ☐	C ☐	D ☐	E ☐
5	A ☐	B ☐	C ☐	D ☐	E ☐
6	A ☐	B ☐	C ☐	D ☐	E ☐
7	A ☐	B ☐	C ☐	D ☐	E ☐
8	A ☐	B ☐	C ☐	D ☐	E ☐
9	A ☐	B ☐	C ☐	D ☐	E ☐
10	A ☐	B ☐	C ☐	D ☐	E ☐
11	A ☐	B ☐	C ☐	D ☐	E ☐
12	A ☐	B ☐	C ☐	D ☐	E ☐
13	A ☐	B ☐	C ☐	D ☐	E ☐
14	A ☐	B ☐	C ☐	D ☐	E ☐
15	A ☐	B ☐	C ☐	D ☐	E ☐
16	A ☐	B ☐	C ☐	D ☐	E ☐
17	A ☐	B ☐	C ☐	D ☐	E ☐
18	A ☐	B ☐	C ☐	D ☐	E ☐

Part 2: Write your answer, one digit in each box

19	
20	
21	
22	
23	
24	

Answers

For a parent to mark with. One mark for each question: the paper is out of 24. Talk through any your child got wrong, using the explanation.

Q	Answer	How to get it
1	E 5	Three stars make 21, so a star is 7. Then $7 + \text{circle} = 12$, so the circle is 5.
2	D 8	Two diamonds make 18, so a diamond is 9. Then $9 + \text{two squares} = 23$, so two squares make 14 and a square is 7. Then $7 + \text{triangle} = 15$, so the triangle is 8.
3	E a triangle	Only the third clue has just one kind of shape: three triangles make 12, so a triangle is 4. Then the circle is $19 - 4 = 15$, the star is $21 - 15 = 6$, and two squares make $16 - 6 = 10$, so a square is 5. (There is no diamond in the puzzle.)
4	B 5	Swap the square on scale B for three circles: four circles weigh 20 g, so a circle weighs 5 g.
5	A 8	Scale A has one extra star and weighs $22 - 15 = 7$ g more, so a star weighs 7 g. On scale B, $\text{square} + 7 = 15$, so the square weighs 8 g.
6	C 17	Row 3 is 3 circles making 21, so a circle is 7. Row 1 makes 17; take away the shapes you know: $17 - 7 = 10$, which is 2 stars, so a star is 5. The missing total is column 2: $5 + 5 + 7 = 17$.
7	B 13	Take the difference off: $22 - 4 = 18$. Share it: $18 \div 2 = 9$, his sister's age. Tom is $9 + 4 = 13$.
8	B 27	That is 4 equal parts. $36 \div 4 = 9$, the smaller number. The bigger number is $3 \times 9 = 27$.
9	A 6	All hens would be 20 legs, 12 too few. Each sheep adds 2 legs: $12 \div 2 = 6$ sheep (and 4 hens).
10	C 9	Two circles and 5 make 19, so two circles make 14 and a circle is 7. Then $7 + \text{star} = 16$, so the star is 9.
11	A 16	The first has one extra apple and costs $70 - 52 = 18\text{p}$ more, so an apple costs 18p. Two apples cost 36p, and $52 - 36 = 16$, so the pear costs 16p.
12	D 9	Row 1 is 3 stars making 15, so a star is 5. Column 1 makes 14; take away the shapes you know: $14 - 10 = 4$, so the circle is 4. Row 2 makes 18; take away the shapes you know: $18 - 9 = 9$, so the triangle is 9.
13	C 8	Scale A has one extra circle and weighs $26 - 17 = 9$ g more, so a circle weighs 9 g. On scale B, $9 + \text{star} = 17$, so the star weighs 8 g.
14	B 18	Take the difference off: $50 - 14 = 36$. Share it: $36 \div 2 = 18$. The numbers are 18 and 32.
15	A 16	The second clue says a circle is the same as four stars. Swap it in the first clue: five stars make 20, so a star is 4 and the circle is $4 \times 4 = 16$.
16	C 5	If all 12 were bikes there would be 24 wheels, 10 too few. Each car adds 2 wheels: $10 \div 2 = 5$ cars (and 7 bikes).

Q	Answer	How to get it
17	D 20	Row 3 is 3 squares making 18, so a square is 6. Row 1 makes 20; take away the shapes you know: $20 - 12 = 8$, so the diamond is 8. The missing total is column 1: $6 + 8 + 6 = 20$.
18	E 3	The second has one extra cake and costs $11 - 7 = £4$ more, so a cake costs £4. Then $7 - 4 = 3$, so the drink costs £3.
19	6	Three diamonds make 27, so a diamond is 9. Then $9 + \text{two stars} = 21$, so two stars make 12 and a star is 6.
20	15	Scale B has one extra square and weighs $31 - 23 = 8$ g more, so a square weighs 8 g. On scale A, $\text{circle} + 8 = 23$, so the circle weighs 15 g.
21	41	Take the difference off: $64 - 18 = 46$. Share it: $46 \div 2 = 23$, the smaller number. The bigger number is $23 + 18 = 41$.
22	7	All hens would be 30 legs, 14 too few. Each sheep adds 2 legs: $14 \div 2 = 7$ sheep (and 8 hens).
23	36	That is 5 equal parts: $45 \div 5 = 9$, Sam's stickers. Ella has $4 \times 9 = 36$.
24	23	Row 2 is 3 circles making 15, so a circle is 5. Row 1 makes 19; take away the shapes you know: $19 - 10 = 9$, so the star is 9. The missing total is row 3: $9 + 9 + 5 = 23$.

Score: out of 24