11+ Reasoning

Think of a Number Practice Papers

10 papers | 10 questions each | answer keys at the back

Easy	Papers 1 to 3
Moderate	Papers 4 to 7
Difficult	Papers 8 to 10

Tips for working through these papers

- Take your time. There is no timer. Stop for a break whenever you need one.
- Write each step down on scrap paper, one line per step.
- To find the starting number, work backwards. Undo the last step first.
- Undo each step with its opposite: add and take away, multiply and divide.
- Check your answer by going forwards from your number. Do you reach the answer?
- Tick one box per question. Cross out options you have ruled out.
- Print on cream or pastel paper if that makes reading more comfortable.

Practice Paper 1

Easy

Read each question one line at a time. Work out the number. Tick the box with the right answer.

Example

I think of a number. I add 5 to it. The answer is 12.

What is my number?

Answer: 7, because 7 + 5 = 12.

1 I think of the number 5.
I add 8 to it.
What is my answer?

A	B	C	D	E
11	15	12	13	14

2 I think of a number.
I take away 9.
The answer is 2.
What is my number?

A	B	C	D	E
9	12	11	13	10

3 I think of the number 3.
I add 19 to it.
What is my answer?

A	B	C	D	E
32	22	21	12	24

Practice Paper 1 (continued)

Easy

4 I think of the number 4.
I take away 2.
What is my answer?

A 2 | B 3 | C 4 | D 1 | E 12

5 I think of a number.
I take away 4.
The answer is 6.
What is my number?

A 8 | B 9 | C 10 | D 11 | E 12

6 I think of a number.
I multiply it by 4.
The answer is 44.
What is my number?

A 12 | B 33 | C 48 | D 10 | E 11

7 I think of a number.
I multiply it by 6.
The answer is 60.
What is my number?

A 10 | B 66 | C 50 | D 12 | E 8

Practice Paper 1 (continued)

Easy

8 I think of the number 6.
I multiply it by 9.
What is my answer?

A	B	C	D	E
44	55	52	54	64

9 I think of a number.
I add 5 to it.
The answer is 14.
What is my number?

A	B	C	D	E
19	5	11	7	9

10 I think of a number.
I multiply it by 8.
The answer is 32.
What is my number?

A	B	C	D	E
40	4	3	2	6

My score: _____ out of 10

Practice Paper 2

Easy

Read each question one line at a time. Work out the number. Tick the box with the right answer.

Example

I think of a number. I add 5 to it. The answer is 12.

What is my number?

Answer: 7, because 7 + 5 = 12.

1 I think of a number.
I add 17 to it.
Then I take away 18.
The answer is 16.
What is my number?

A	B	C	D	E
16	17	18	33	15

2 I think of the number 2.
I add 3 to it.
Then I take away 2.
What is my answer?

A	B	C	D	E
5	13	3	2	4

3 I think of a number.
I take away 4.
Then I add 3.
The answer is 4.
What is my number?

A **6** B **3** C **8** D **5** E **7**

4 I think of a number.
I add 18 to it.
Then I take away 11.
The answer is 19.
What is my number?

A **13** B **14** C **12** D **30** E **11**

5 I think of a number.
I add 6 to it.
Then I take away 1.
The answer is 11.
What is my number?

A **8** B **6** C **4** D **5** E **17**

Practice Paper 2 (continued) — Easy

6 I think of a number.
I take away 1.
The answer is 5.
What is my number?

A	B	C	D	E
6	5	4	8	7

7 I think of a number.
I add 18 to it.
The answer is 28.
What is my number?

A	B	C	D	E
11	46	12	10	8

8 I think of a number.
I add 3 to it.
The answer is 39.
What is my number?

A	B	C	D	E
35	37	3	34	36

9 I think of a number.
I add 20 to it.
The answer is 37.
What is my number?

A	B	C	D	E
17	19	20	18	16

10 I think of the number 4.
I multiply it by 3.
Then I add 3.
What is my answer?

A **12** B **25** C **16** D **14** E **15**

My score: _____ out of 10

Practice Paper 3

Easy

Read each question one line at a time. Work out the number. Tick the box with the right answer.

Example

I think of a number. I add 5 to it. The answer is 12.

What is my number?

Answer: 7, because 7 + 5 = 12.

1 I think of a number.
I take away 2.
Then I double the answer.
The answer is 28.
What is my number?

A	B	C	D	E
17	14	18	12	16

2 I think of a number.
I take away 10.
Then I multiply by 5.
The answer is 40.
What is my number?

A	B	C	D	E
18	50	8	16	22

3 I think of a number.
I multiply it by 2.
Then I take away 10.
The answer is 28.
What is my number?

A 24 | B 21 | C 19 | D 20 | E 18

4 I think of a number.
I divide it by 2.
Then I add 7.
The answer is 14.
What is my number?

A 13 | B 16 | C 12 | D 14 | E 15

5 I think of a number.
I add 2 to it.
Then I divide by 5.
The answer is 2.
What is my number?

A 4 | B 8 | C 7 | D 0 | E 6

6 I think of a number.
I multiply it by 6.
Then I add 13.
The answer is 133.
What is my number?

A 20 | B 139 | C 113 | D 21 | E 22

7 I think of a number.
I add 18 to it.
Then I halve the answer.
The answer is 19.
What is my number?

A 2 | B 22 | C 20 | D 21 | E 19

8 I think of the number 8.
I divide it by 2.
Then I take away 1.
What is my answer?

A 13 | B 3 | C 2 | D 1 | E 5

9 I think of the number 5.
I multiply it by 8.
Then I add 6.
What is my answer?

A **45** B **47** C **44** D **48** E **46**

10 I think of a number.
I multiply it by 5.
Then I add 3.
The answer is 73.
What is my number?

A **15** B **70** C **12** D **14** E **78**

My score: _____ out of 10

Practice Paper 4

Moderate

Read each question one line at a time. Work out the number. Tick the box with the right answer.

Example

I think of a number. I add 5 to it. The answer is 12.

What is my number?

Answer: 7, because 7 + 5 = 12.

1 I think of a number.
I take away 1.
Then I multiply by 3.
The answer is 15.
What is my number?

A	B	C	D	E
4	6	5	7	16

2 I think of a number.
I take away 11.
Then I add 13.
Then I double the answer.
The answer is 62.
What is my number?

A	B	C	D	E
29	31	30	28	73

3 I think of a number.
I double it.
Then I add 19.
The answer is 31.
What is my number?

A 7 | B 33 | C 6 | D 5 | E 12

4 I think of a number.
I double it.
Then I add 7.
The answer is 25.
What is my number?

A 8 | B 11 | C 7 | D 9 | E 18

5 I think of a number.
I add 13 to it.
Then I multiply by 2.
The answer is 62.
What is my number?

A 31 | B 17 | C 19 | D 20 | E 18

6 I think of a number.
I add 12 to it.
Then I divide by 5.
The answer is 3.
What is my number?

A 3 | B 1 | C 15 | D 2 | E 5

7 I think of a number.
I double it.
Then I take away 4.
Then I double the answer.
The answer is 88.
What is my number?

A 22 | B 90 | C 25 | D 24 | E 44

8 I think of a number.
I take away 5.
Then I add 5.
The answer is 22.
What is my number?

A 17 | B 21 | C 20 | D 24 | E 22

Practice Paper 4 (continued) — Moderate

9 I think of the number 7.
I take away 2.
Then I multiply by 6.
Then I add 15.
What is my answer?

A **44** | B **45** | C **43** | D **46** | E **130**

10 I think of the number 7.
I multiply it by 4.
Then I add 20.
Then I double the answer.
What is my answer?

A **98** | B **106** | C **96** | D **95** | E **94**

My score: _____ out of 10

Practice Paper 5

Moderate

Read each question one line at a time. Work out the number. Tick the box with the right answer.

Example

I think of a number. I add 5 to it. The answer is 12.

What is my number?

Answer: 7, because 7 + 5 = 12.

1 I think of a number.
I multiply it by 8.
Then I double the answer.
Then I take away 20.
The answer is 188.
What is my number?

A	B	C	D	E
208	14	12	13	196

2 I think of a number.
I take away 2.
Then I double the answer.
Then I add 10.
The answer is 22.
What is my number?

A	B	C	D	E
6	12	10	9	8

Practice Paper 5 (continued) — Moderate

3 I think of a number.
I add 12 to it.
Then I take away 9.
The answer is 12.
What is my number?

A	B	C	D	E
10	9	3	24	8

4 I think of a number.
I halve it.
Then I take away 1.
Then I double the answer.
The answer is 6.
What is my number?

A	B	C	D	E
7	3	8	6	10

5 I think of the number 9.
I divide it by 3.
Then I add 4.
Then I double the answer.
What is my answer?

A	B	C	D	E
4	16	7	24	14

6 I think of a number.
I double it.
Then I add 7.
Then I take away 4.
The answer is 23.
What is my number?

A 25 | B 27 | C 10 | D 8 | E 9

7 I think of a number.
I take away 8.
Then I add 10.
The answer is 38.
What is my number?

A 36 | B 38 | C 34 | D 37 | E 46

8 I think of the number 14.
I add 6 to it.
Then I divide by 5.
Then I halve the answer.
What is my answer?

A 12 | B 0 | C 1 | D 2 | E 3

9 I think of a number.
I multiply it by 3.
Then I add 11.
Then I divide by 2.
The answer is 31.
What is my number?

A **15** B **17** C **62** D **14** E **19**

10 I think of a number.
I halve it.
Then I add 6.
Then I take away 10.
The answer is 1.
What is my number?

A **10** B **12** C **11** D **9** E **8**

My score: _____ out of 10

Practice Paper 6

Moderate

Read each question one line at a time. Work out the number. Tick the box with the right answer.

Example

I think of a number. I add 5 to it. The answer is 12.

What is my number?

Answer: 7, because 7 + 5 = 12.

1 I think of a number.
I multiply it by 3.
Then I add 12.
Then I double the answer.
The answer is 108.
What is my number?

A	B	C	D	E
54	12	14	13	16

2 I think of two numbers.
Their sum is 14.
Their difference is 8.
What is the larger number?

A	B	C	D	E
7	12	10	3	11

3 I think of a number.
I halve it.
Then I add 5.
Then I take away 2.
The answer is 5.
What is my number?

A 1 | B 4 | C 5 | D 6 | E 7

4 I think of two numbers.
Their sum is 12.
Their difference is 2.
What is the larger number?

A 5 | B 8 | C 2 | D 7 | E 6

5 I think of a number.
I multiply it by 4.
Then I add 12.
Then I multiply by 2.
The answer is 136.
What is my number?

A 14 | B 140 | C 122 | D 15 | E 68

6 I think of a number.
I multiply it by 4.
Then I find two thirds of the answer.
The answer is 96.
What is my number?

A **34** B **38** C **144** D **36** E **60**

7 I think of a number.
I take away 10.
Then I add 13.
Then I take away 16.
The answer is 6.
What is my number?

A **17** B **19** C **16** D **20** E **22**

8 I think of a number.
I multiply it by 2 and then take away 7.
This gives the same answer as when I add 8 to my number.
What is my number?

A **13** B **17** C **15** D **12** E **14**

Practice Paper 6 (continued) — Moderate

9 I think of a number.
I add 2 and then multiply by 2.
This gives the same answer as when I add 18 to my number.
What is my number?

A	B	C	D	E
14	15	12	17	16

10 I think of a number.
I take away 1.
Then I find half of the answer.
The answer is 2.
What is my number?

A	B	C	D	E
7	4	6	3	5

My score: _____ out of 10

Practice Paper 7

Moderate

Read each question one line at a time. Work out the number. Tick the box with the right answer.

Example

I think of a number. I add 5 to it. The answer is 12.

What is my number?

Answer: 7, because 7 + 5 = 12.

1 I think of two numbers.
Their sum is 70.
Their difference is 6.
What is the smaller number?

A	B	C	D	E
64	39	32	31	44

2 I think of a number.
I add 9 to it.
Then I take away 15.
Then I double the answer.
The answer is 8.
What is my number?

A	B	C	D	E
10	4	12	7	11

3 I think of a number.
I add 2 to it.
Then I double the answer.
Then I multiply by 4.
The answer is 184.
What is my number?

A 19 B 21 C 20 D 163 E 46

4 I think of a number.
I multiply it by 3.
This is 26 more than my number.
What is my number?

A 13 B 26 C 10 D 12 E 15

5 I think of a number.
I double it.
Then I multiply by 2.
Then I take away 10.
The answer is 150.
What is my number?

A 38 B 39 C 40 D 42 E 152

6 I think of two numbers.
Their sum is 42.
Their difference is 18.
What is the smaller number?

A **11** B **12** C **13** D **24** E **30**

7 I think of a number.
I double it.
Then I multiply by 3.
Then I double the answer.
The answer is 312.
What is my number?

A **27** B **28** C **24** D **286** E **26**

8 I think of a number.
I add 4 to it.
Then I halve the answer.
Then I take away 1.
The answer is 3.
What is my number?

A **5** B **6** C **2** D **4** E **3**

9 I think of a number.
I add 2 and then multiply by 2.
This gives the same answer as when I add 14 to my number.
What is my number?

A **11** B **20** C **8** D **9** E **10**

10 I think of a number.
I multiply it by 5 and then take away 7.
This gives the same answer as when I add 17 to my number.
What is my number?

A **4** B **7** C **8** D **6** E **3**

My score: _____ out of 10

Practice Paper 8

Difficult

Read each question one line at a time. Work out the number. Tick the box with the right answer.

Example

I think of a number. I add 5 to it. The answer is 12.

What is my number?

Answer: 7, because 7 + 5 = 12.

1 I think of a number.
I multiply it by 3 and then take away 5.
This gives the same answer as when I add 23 to my number.
What is my number?

A	B	C	D	E
12	17	11	13	14

2 I think of a number.
I multiply it by 8.
Then I add 8.
Then I multiply by 2.
The answer is 96.
What is my number?

A	B	C	D	E
3	5	6	104	2

Practice Paper 8 (continued) — Difficult

3 I think of a number.
I add 16 to it.
Then I double the answer.
Then I take away 13.
Then I double the answer.
The answer is 90.
What is my number?

A **45** | B **106** | C **77** | D **13** | E **12**

4 I think of two numbers.
Their sum is 20.
Their difference is 10.
What is the larger number?

A **16** | B **15** | C **5** | D **10** | E **14**

5 I think of a number.
I multiply it by 2.
This is 4 more than my number.
What is my number?

A **4** | B **2** | C **1** | D **6** | E **3**

6 I think of a number.
I add 19 to it.
Then I multiply by 3.
Then I find half of the answer.
The answer is 87.
What is my number?

A **174** B **40** C **39** D **37** E **41**

7 I think of a number.
I add 16 to it.
Then I double the answer.
Then I multiply by 3.
Then I take away 19.
The answer is 167.
What is my number?

A **16** B **186** C **152** D **14** E **15**

8 I think of a number.
I multiply it by 3 and then take away 9.
This gives the same answer as when I add 13 to my number.
What is my number?

A **11** B **8** C **13** D **22** E **10**

Practice Paper 8 (continued) — Difficult

9 I think of a number.
I divide it by 2.
Then I take away 5.
Then I multiply by 4.
Then I take away 13.
The answer is 11.
What is my number?

A **20** B **23** C **13** D **22** E **21**

10 I think of two numbers.
Their sum is 10.
Their difference is 6.
What is the larger number?

A **2** B **4** C **8** D **7** E **5**

My score: _____ out of 10

Practice Paper 9

Difficult

Read each question one line at a time. Work out the number. Tick the box with the right answer.

Example

I think of a number. I add 5 to it. The answer is 12.

What is my number?

Answer: 7, because 7 + 5 = 12.

1 I think of a number.
I multiply it by 3.
This is 26 more than my number.
What is my number?

A	B	C	D	E
15	16	12	39	13

2 I think of a number.
I double it.
Then I multiply by 4.
Then I add 8.
Then I find half of the answer.
The answer is 44.
What is my number?

A	B	C	D	E
88	10	11	34	46

3 I think of two numbers.
Their sum is 60.
Their difference is 6.
What is the larger number?

A **34** B **30** C **33** D **27** E **32**

4 I think of a number.
I add 1 and then multiply by 3.
This gives the same answer as when I add 33 to my number.
What is my number?

A **15** B **45** C **12** D **14** E **13**

5 I think of a number.
I halve it.
Then I add 6.
Then I double the answer.
Then I take away 8.
The answer is 10.
What is my number?

A **18** B **15** C **7** D **6** E **12**

6 I think of a number.
I add 1 to it.
Then I multiply it by itself.
The answer is 81.
What is my number?

A 6 | B 8 | C 16 | D 10 | E 9

7 I think of a number.
I double it.
Then I multiply by 3.
Then I add 2.
Then I halve the answer.
The answer is 16.
What is my number?

A 7 | B 3 | C 5 | D 11 | E 18

8 I think of two numbers.
Their sum is 34.
Their difference is 24.
What is the larger number?

A 10 | B 30 | C 5 | D 24 | E 29

Practice Paper 9 (continued)

Difficult

9 I think of a number.
I multiply it by 2 and then take away 9.
This gives the same answer as when I add 6 to my number.
What is my number?

A **15** B **45** C **16** D **14** E **30**

10 I think of a number.
I add 4 to it.
Then I multiply it by itself.
The answer is 256.
What is my number?

A **11** B **128** C **13** D **12** E **10**

My score: _____ out of 10

Practice Paper 10

Difficult

Read each question one line at a time. Work out the number. Tick the box with the right answer.

Example

I think of a number. I add 5 to it. The answer is 12.

What is my number?

Answer: 7, because 7 + 5 = 12.

1 I think of a number.
I add 16 to it.
Then I multiply by 8.
Then I find two thirds of the answer.
Then I take away 17.
The answer is 111.
What is my number?

A	B	C	D	E
7	128	127	8	6

2 I think of a number.
I add 8 and then multiply by 3.
This gives the same answer as when I add 30 to my number.
What is my number?

A	B	C	D	E
9	3	6	5	2

3 I think of two numbers.
Their sum is 20.
Their difference is 10.
What is the smaller number?

A 15 | B 4 | C 10 | D 16 | E 5

4 I think of a number.
I add 4 to it.
Then I multiply it by itself.
The answer is 144.
What is my number?

A 6 | B 9 | C 8 | D 16 | E 10

5 I think of a number.
I halve it.
Then I add 8.
Then I take away 2.
Then I double the answer.
The answer is 24.
What is my number?

A 11 | B 14 | C 21 | D 13 | E 12

6 I think of a number.
I take away 16.
Then I add 14.
Then I multiply by 4.
Then I double the answer.
The answer is 168.
What is my number?

A 84 | B 25 | C 23 | D 145 | E 24

7 I think of a number.
I multiply it by itself.
Then I take away 17.
The answer is 32.
What is my number?

A 5 | B 7 | C 16 | D 8 | E 15

8 I think of two numbers.
Their sum is 62.
Their difference is 8.
What is the larger number?

A 35 | B 54 | C 31 | D 8 | E 36

Practice Paper 10 (continued) — Difficult

9 I think of a number.
I multiply it by 6 and then add 7.
This gives the same answer as when I multiply my number by 3 and ad
What is my number?

A **5** B **2** C **1** D **4** E **8**

10 I think of a number.
I multiply it by 5 and then add 3.
This gives the same answer as when I multiply my number by 4 and ad
What is my number?

A **10** B **30** C **13** D **20** E **12**

My score: _____ out of 10

Answer Keys

Quick key

Paper	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	D	C	B	A	C	E	A	D	E	B
2	B	C	D	C	B	A	D	E	A	E
3	E	A	C	D	B	A	C	B	E	D
4	B	A	C	D	E	A	D	E	B	C
5	D	E	B	C	E	C	A	D	B	A
6	C	E	B	D	A	D	B	C	A	E
7	C	A	B	A	C	B	E	D	E	D
8	E	B	D	B	A	C	E	A	D	C
9	E	B	C	A	D	B	C	E	A	D
10	D	B	E	C	E	C	B	A	D	A

Paper 1 answers (Easy)

1. **D (13)** Work forwards: 5 + 8 = 13. My answer is 13.
2. **C (11)** Work backwards: 2 + 9 = 11. My number is 11.
3. **B (22)** Work forwards: 3 + 19 = 22. My answer is 22.
4. **A (2)** Work forwards: 4 - 2 = 2. My answer is 2.
5. **C (10)** Work backwards: 6 + 4 = 10. My number is 10.
6. **E (11)** Work backwards: 44 ÷ 4 = 11. My number is 11.
7. **A (10)** Work backwards: 60 ÷ 6 = 10. My number is 10.
8. **D (54)** Work forwards: 6 × 9 = 54. My answer is 54.
9. **E (9)** Work backwards: 14 - 5 = 9. My number is 9.
10. **B (4)** Work backwards: 32 ÷ 8 = 4. My number is 4.

Paper 2 answers (Easy)

1. **B (17)** Work backwards: 16 + 18 = 34; 34 - 17 = 17. My number is 17.
2. **C (3)** Work forwards: 2 + 3 = 5; 5 - 2 = 3. My answer is 3.
3. **D (5)** Work backwards: 4 - 3 = 1; 1 + 4 = 5. My number is 5.
4. **C (12)** Work backwards: 19 + 11 = 30; 30 - 18 = 12. My number is 12.
5. **B (6)** Work backwards: 11 + 1 = 12; 12 - 6 = 6. My number is 6.
6. **A (6)** Work backwards: 5 + 1 = 6. My number is 6.
7. **D (10)** Work backwards: 28 - 18 = 10. My number is 10.
8. **E (36)** Work backwards: 39 - 3 = 36. My number is 36.
9. **A (17)** Work backwards: 37 - 20 = 17. My number is 17.
10. **E (15)** Work forwards: 4 × 3 = 12; 12 + 3 = 15. My answer is 15.

Paper 3 answers (Easy)

1. **E (16)** Work backwards: 28 ÷ 2 = 14; 14 + 2 = 16. My number is 16.
2. **A (18)** Work backwards: 40 ÷ 5 = 8; 8 + 10 = 18. My number is 18.
3. **C (19)** Work backwards: 28 + 10 = 38; 38 ÷ 2 = 19. My number is 19.
4. **D (14)** Work backwards: 14 - 7 = 7; 7 × 2 = 14. My number is 14.
5. **B (8)** Work backwards: 2 × 5 = 10; 10 - 2 = 8. My number is 8.
6. **A (20)** Work backwards: 133 - 13 = 120; 120 ÷ 6 = 20. My number is 20.
7. **C (20)** Work backwards: 19 × 2 = 38; 38 - 18 = 20. My number is 20.
8. **B (3)** Work forwards: 8 ÷ 2 = 4; 4 - 1 = 3. My answer is 3.
9. **E (46)** Work forwards: 5 × 8 = 40; 40 + 6 = 46. My answer is 46.
10. **D (14)** Work backwards: 73 - 3 = 70; 70 ÷ 5 = 14. My number is 14.

Paper 4 answers (Moderate)

1. **B (6)** Work backwards: 15 ÷ 3 = 5; 5 + 1 = 6. My number is 6.
2. **A (29)** Work backwards: 62 ÷ 2 = 31; 31 - 13 = 18; 18 + 11 = 29. My number is 29.
3. **C (6)** Work backwards: 31 - 19 = 12; 12 ÷ 2 = 6. My number is 6.
4. **D (9)** Work backwards: 25 - 7 = 18; 18 ÷ 2 = 9. My number is 9.
5. **E (18)** Work backwards: 62 ÷ 2 = 31; 31 - 13 = 18. My number is 18.
6. **A (3)** Work backwards: 3 × 5 = 15; 15 - 12 = 3. My number is 3.
7. **D (24)** Work backwards: 88 ÷ 2 = 44; 44 + 4 = 48; 48 ÷ 2 = 24. My number is 24.
8. **E (22)** Work backwards: 22 - 5 = 17; 17 + 5 = 22. My number is 22.
9. **B (45)** Work forwards: 7 - 2 = 5; 5 × 6 = 30; 30 + 15 = 45. My answer is 45.
10. **C (96)** Work forwards: 7 × 4 = 28; 28 + 20 = 48; 48 × 2 = 96. My answer is 96.

Paper 5 answers (Moderate)

1. **D (13)** Work backwards: 188 + 20 = 208; 208 ÷ 2 = 104; 104 ÷ 8 = 13. My number is 13.
2. **E (8)** Work backwards: 22 - 10 = 12; 12 ÷ 2 = 6; 6 + 2 = 8. My number is 8.
3. **B (9)** Work backwards: 12 + 9 = 21; 21 - 12 = 9. My number is 9.
4. **C (8)** Work backwards: 6 ÷ 2 = 3; 3 + 1 = 4; 4 × 2 = 8. My number is 8.
5. **E (14)** Work forwards: 9 ÷ 3 = 3; 3 + 4 = 7; 7 × 2 = 14. My answer is 14.
6. **C (10)** Work backwards: 23 + 4 = 27; 27 - 7 = 20; 20 ÷ 2 = 10. My number is 10.
7. **A (36)** Work backwards: 38 - 10 = 28; 28 + 8 = 36. My number is 36.
8. **D (2)** Work forwards: 14 + 6 = 20; 20 ÷ 5 = 4; 4 ÷ 2 = 2. My answer is 2.
9. **B (17)** Work backwards: 31 × 2 = 62; 62 - 11 = 51; 51 ÷ 3 = 17. My number is 17.
10. **A (10)** Work backwards: 1 + 10 = 11; 11 - 6 = 5; 5 × 2 = 10. My number is 10.

Paper 6 answers (Moderate)

1. **C (14)** Work backwards: 108 ÷ 2 = 54; 54 - 12 = 42; 42 ÷ 3 = 14. My number is 14.
2. **E (11)** The numbers are 11 and 3, because 11 + 3 = 14 and 11 - 3 = 8.
3. **B (4)** Work backwards: 5 + 2 = 7; 7 - 5 = 2; 2 × 2 = 4. My number is 4.
4. **D (7)** The numbers are 7 and 5, because 7 + 5 = 12 and 7 - 5 = 2.
5. **A (14)** Work backwards: 136 ÷ 2 = 68; 68 - 12 = 56; 56 ÷ 4 = 14. My number is 14.
6. **D (36)** Work backwards: 96 ÷ 2 × 3 = 144; 144 ÷ 4 = 36. My number is 36.
7. **B (19)** Work backwards: 6 + 16 = 22; 22 - 13 = 9; 9 + 10 = 19. My number is 19.
8. **C (15)** Try 15: 2 × 15 - 7 = 23 and 15 + 8 = 23. Both sides match.
9. **A (14)** Try 14: (14 + 2) × 2 = 32 and 14 + 18 = 32. Both sides match.
10. **E (5)** Work backwards: 2 ÷ 1 × 2 = 4; 4 + 1 = 5. My number is 5.

Paper 7 answers (Moderate)

1. **C (32)** The numbers are 38 and 32, because 38 + 32 = 70 and 38 - 32 = 6.
2. **A (10)** Work backwards: 8 ÷ 2 = 4; 4 + 15 = 19; 19 - 9 = 10. My number is 10.
3. **B (21)** Work backwards: 184 ÷ 4 = 46; 46 ÷ 2 = 23; 23 - 2 = 21. My number is 21.
4. **A (13)** Try 13: 3 × 13 = 39 and 13 + 26 = 39. Both sides match.
5. **C (40)** Work backwards: 150 + 10 = 160; 160 ÷ 2 = 80; 80 ÷ 2 = 40. My number is 40.
6. **B (12)** The numbers are 30 and 12, because 30 + 12 = 42 and 30 - 12 = 18.
7. **E (26)** Work backwards: 312 ÷ 2 = 156; 156 ÷ 3 = 52; 52 ÷ 2 = 26. My number is 26.
8. **D (4)** Work backwards: 3 + 1 = 4; 4 × 2 = 8; 8 - 4 = 4. My number is 4.
9. **E (10)** Try 10: (10 + 2) × 2 = 24 and 10 + 14 = 24. Both sides match.
10. **D (6)** Try 6: 5 × 6 - 7 = 23 and 6 + 17 = 23. Both sides match.

Paper 8 answers (Difficult)

1. **E (14)** Try 14: 3 × 14 - 5 = 37 and 14 + 23 = 37. Both sides match.
2. **B (5)** Work backwards: 96 ÷ 2 = 48; 48 - 8 = 40; 40 ÷ 8 = 5. My number is 5.
3. **D (13)** Work backwards: 90 ÷ 2 = 45; 45 + 13 = 58; 58 ÷ 2 = 29; 29 - 16 = 13. My number is 13.
4. **B (15)** The numbers are 15 and 5, because 15 + 5 = 20 and 15 - 5 = 10.
5. **A (4)** Try 4: 2 × 4 = 8 and 4 + 4 = 8. Both sides match.
6. **C (39)** Work backwards: 87 ÷ 1 × 2 = 174; 174 ÷ 3 = 58; 58 - 19 = 39. My number is 39.
7. **E (15)** Work backwards: 167 + 19 = 186; 186 ÷ 3 = 62; 62 ÷ 2 = 31; 31 - 16 = 15. My number is 15.
8. **A (11)** Try 11: 3 × 11 - 9 = 24 and 11 + 13 = 24. Both sides match.
9. **D (22)** Work backwards: 11 + 13 = 24; 24 ÷ 4 = 6; 6 + 5 = 11; 11 × 2 = 22. My number is 22.
10. **C (8)** The numbers are 8 and 2, because 8 + 2 = 10 and 8 - 2 = 6.

Paper 9 answers (Difficult)

1. **E (13)** Try 13: 3 × 13 = 39 and 13 + 26 = 39. Both sides match.
2. **B (10)** Work backwards: 44 ÷ 1 × 2 = 88; 88 - 8 = 80; 80 ÷ 4 = 20; 20 ÷ 2 = 10. My number is 10.
3. **C (33)** The numbers are 33 and 27, because 33 + 27 = 60 and 33 - 27 = 6.
4. **A (15)** Try 15: (15 + 1) × 3 = 48 and 15 + 33 = 48. Both sides match.
5. **D (6)** Work backwards: 10 + 8 = 18; 18 ÷ 2 = 9; 9 - 6 = 3; 3 × 2 = 6. My number is 6.
6. **B (8)** Work backwards: square root of 81 = 9; 9 - 1 = 8. My number is 8.
7. **C (5)** Work backwards: 16 × 2 = 32; 32 - 2 = 30; 30 ÷ 3 = 10; 10 ÷ 2 = 5. My number is 5.
8. **E (29)** The numbers are 29 and 5, because 29 + 5 = 34 and 29 - 5 = 24.
9. **A (15)** Try 15: 2 × 15 - 9 = 21 and 15 + 6 = 21. Both sides match.
10. **D (12)** Work backwards: square root of 256 = 16; 16 - 4 = 12. My number is 12.

Paper 10 answers (Difficult)

1. **D (8)** Work backwards: 111 + 17 = 128; 128 ÷ 2 × 3 = 192; 192 ÷ 8 = 24; 24 - 16 = 8. My number is 8.
2. **B (3)** Try 3: (3 + 8) × 3 = 33 and 3 + 30 = 33. Both sides match.
3. **E (5)** The numbers are 15 and 5, because 15 + 5 = 20 and 15 - 5 = 10.
4. **C (8)** Work backwards: square root of 144 = 12; 12 - 4 = 8. My number is 8.
5. **E (12)** Work backwards: 24 ÷ 2 = 12; 12 + 2 = 14; 14 - 8 = 6; 6 × 2 = 12. My number is 12.
6. **C (23)** Work backwards: 168 ÷ 2 = 84; 84 ÷ 4 = 21; 21 - 14 = 7; 7 + 16 = 23. My number is 23.
7. **B (7)** Work backwards: 32 + 17 = 49; square root of 49 = 7. My number is 7.
8. **A (35)** The numbers are 35 and 27, because 35 + 27 = 62 and 35 - 27 = 8.
9. **D (4)** Try 4: 6 × 4 + 7 = 31 and 3 × 4 + 19 = 31. Both sides match.
10. **A (10)** Try 10: 5 × 10 + 3 = 53 and 4 × 10 + 13 = 53. Both sides match.