11+ Mathematics Practice Paper

Read the following carefully:

1. This is a **multiple-choice test** designed to help you practise the types of questions you will see in an 11+ Mathematics exam.

2. There are a total of **50 questions**. You must select **one answer** for each question.

3. Answers should be marked on the **answer sheet** provided on the next two pages.

4. Questions become increasingly more difficult, so do not spend too long at the beginning of the test.

5. You may find some of the questions difficult. If you get stuck or you are unsure, **choose the answer you think is best and then move on to the next question**.

6. Work as quickly and carefully as you can.

11+ Mathematics Paper Answer Sheet

Atom Learning

Draw a line clearly through the rectangle next to your answer, like ▭ **.**

1
- 403 116
- 400 130
- 430 116
- 430 161
- 460 131

2
- 4.25
- 14
- 16
- 17
- 18

3
- 16
- 21
- 23
- 25
- 28

4
- Cambridge
- Oxford
- York
- Ipswich
- Watford

5
- 6 cm
- 7 cm
- 8 cm
- 9 cm
- 12 cm

6
- £23.85
- £26.25
- £22.99
- £24.15
- £25.80

7
- 13
- 53
- 61
- 71
- 129

8
- 8
- 9
- 27
- 64
- 125

9
- $\frac{1}{20}$
- $\frac{1}{10}$
- $\frac{5}{10}$
- $\frac{1}{25}$
- $\frac{5}{20}$

10
- 11:45
- 15:45
- 16:15
- 16:42
- 18:45

11
- 8
- 20
- 32
- 36
- 64

12
- 12.3
- 12.35
- 12.4
- 12.45
- 12.7

13
- 36
- 64
- 81
- 72
- 96

14
- 1.107 g
- 11.07 g
- 110.7 g
- 1 107 g
- 11 070 g

15
- 4
- 5
- 7
- 12
- 16

16
- 12
- 18
- 24
- 32
- 48

17
- 0.004
- 0.04
- 0.4
- 0
- 4

18
- Triangle
- Hexagon
- Trapezium
- Rhombus
- Kite

19
- -13°C
- -8°C
- -7°C
- 8°C
- 18°C

20
- 0 to 2 hours
- 2 to 4 hours
- 4 to 6 hours
- 6 to 8 hours
- 8 to 10 hours

21
- 6 cm²
- 9 cm²
- 24 cm²
- 36 cm²
- 81 cm²

22
- 3
- 4
- 12
- 27
- 36

23
- $\frac{1}{6}$
- $\frac{1}{7}$
- $\frac{2}{11}$
- $\frac{3}{14}$
- $\frac{4}{21}$

24
- 96°
- 100°
- 120°
- 140°
- 160°

25
- 6
- 7
- 8
- 9
- 24

11+ Mathematics Paper Answer Sheet

Draw a line clearly through the rectangle next to your answer, like ▭.

26
- Polygon ▭
- Pentagon ▭
- Trapezium ▭
- Rhombus ▭
- Kite ▭

27
- 200° ▭
- 210° ▭
- 220° ▭
- 230° ▭
- 240° ▭

28
- 2 ▭
- 64 ▭
- 96 ▭
- 128 ▭
- 200 ▭

29
- 8 568 ▭
- 17 136 ▭
- 17 248 ▭
- 18 036 ▭
- 69 972 ▭

30
- 47 ▭
- 63 ▭
- 73 ▭
- 97 ▭
- 101 ▭

31
- 75 minutes ▭
- 95 minutes ▭
- 110 minutes ▭
- 125 minutes ▭
- 145 minutes ▭

32
- 5 ▭
- 6 ▭
- 7 ▭
- 8 ▭
- 9 ▭

33
- 525 g ▭
- 550 g ▭
- 575 g ▭
- 600 g ▭
- 625 g ▭

34
- (1, 6) ▭
- (5, 1) ▭
- (6, 1) ▭
- (6, 2) ▭
- (7, 1) ▭

35
- 4 ▭
- 16 ▭
- 24 ▭
- 32 ▭
- 64 ▭

36
- 2.09 mm ▭
- 20.9 mm ▭
- 2.09 cm ▭
- 20.9 cm ▭
- 209 cm ▭

37
- $\frac{1}{8}$ ▭
- 11% ▭
- 0.15 ▭
- $\frac{4}{25}$ ▭
- 12.5% ▭

38
- 6 ▭
- 8 ▭
- 9 ▭
- 11 ▭
- 18 ▭

39
- 18 & 24 ▭
- 24 & 32 ▭
- 24 & 42 ▭
- 24 & 48 ▭
- 32 & 72 ▭

40
- The Grin ▭
- The Whizzer ▭
- Raging River ▭
- Tormenter ▭
- The Twirler ▭

41
- 186.3 ▭
- 207 ▭
- 1 863 ▭
- 2 070 ▭
- 18 630 ▭

42
- (4, 4) ▭
- (5, 3) ▭
- (4, 1) ▭
- (3,5) ▭
- (5, 4) ▭

43
- 40 m ▭
- 80 m ▭
- 440 m ▭
- 480 m ▭
- 800 m ▭

44
- $8\frac{3}{4}$ ▭
- $8\frac{3}{12}$ ▭
- $\frac{25}{4}$ ▭
- $24\frac{1}{4}$ ▭
- $24\frac{3}{4}$ ▭

45
- A ▭
- B ▭
- C ▭
- D ▭
- E ▭

46
- Wednesday ▭
- Thursday ▭
- Friday ▭
- Saturday ▭
- Sunday ▭

47
- East ▭
- South-East ▭
- South ▭
- South-West ▭
- West ▭

48
- 3 ▭
- 6 ▭
- 9 ▭
- 12 ▭
- 15 ▭

49
- £8.25 ▭
- £9.25 ▭
- £16.50 ▭
- £33 ▭
- £41.25 ▭

50
- 6 ▭
- 8 ▭
- 10 ▭
- 12 ▭
- 16 ▭

1 What is four hundred and thirty thousand, one hundred and sixty-one in numerals?

A 403 116   B 400 130   C 430 116   D 430 161   E 460 131

2 The pictogram below shows the number of sunny days in June, July and August.

Month	Number of sunny days
June	☀ ☀ ☀ ☀ ◔
July	☀ ☀ ☀ ◑
August	☀ ☀ ☀ ☀ ◑

☀ = 4 days

How many sunny days were there in June?

A 4.25   B 14   C 16   D 17   E 18

3 58   51   44   37   30   ___

Which number would come next in the above sequence?

A 16   B 21   C 23   D 25   E 28

4 The table below shows the population of several UK cities.

City	Population
Cambridge	150 284
Oxford	152 450
York	156 135
Ipswich	151 240
Watford	148 069

Which of these cities has the second largest population?

A Cambridge

B Oxford

C York

D Ipswich

E Watford

---

5 A rectangle has an area of 56 cm².
One of the shorter sides is 7 cm long.

What is the length of one of the longer sides?

A 6 cm   **B** 7 cm   **C** 8 cm   **D** 9 cm   **E** 12 cm

---

6 Below are the prices of five bouquets of flowers.
Sariba wants to spend as close to £25 as possible.

How much does she spend on a bouquet?

A £23.85   **B** £26.25   **C** £22.99   **D** £24.15   **E** £25.80

---

7 **Find the missing number in the calculation:**

$$617 - 58 \ = \ 546 + \boxed{}$$

A 13   **B** 53   **C** 61   **D** 71   **E** 129

---

8 **Which of the numbers can be added to the shaded region of the Venn diagram below?**
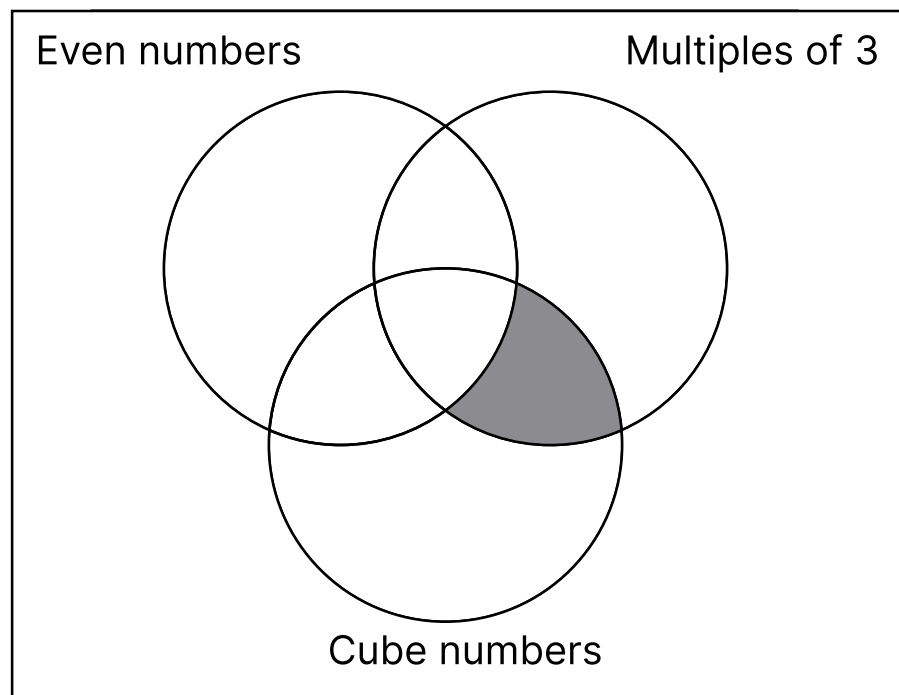
A 8   **B** 9   **C** 27   **D** 64   **E** 125

---

9   There are 100 animals in a pet shop: 48 dogs, 37 cats, 5 fish and 10 rabbits.

What proportion of the animals are fish?

A $\dfrac{1}{20}$ B $\dfrac{1}{10}$ C $\dfrac{5}{10}$ D $\dfrac{1}{25}$ E $\dfrac{5}{20}$

---

10   There are three buses a day. The timetable below shows when the bus arrives at each stop.

Bus Stop	Time		
Tulip Street	10:00	14:30	17:00
Bluebell Drive	10:16	14:46	17:16
Lilac Avenue	10:52	15:22	17:52
Dandelion Lane	11:45		18:45

What time should the second bus arrive at Dandelion Lane?

A 11:45   B 15:45   C 16:15   D 16:42   E 18:45

---

11   **What is 40% of 80?**

A 8   B 20   C 32   D 36   E 64

---

12 **What number does the arrow point to?**

12   13
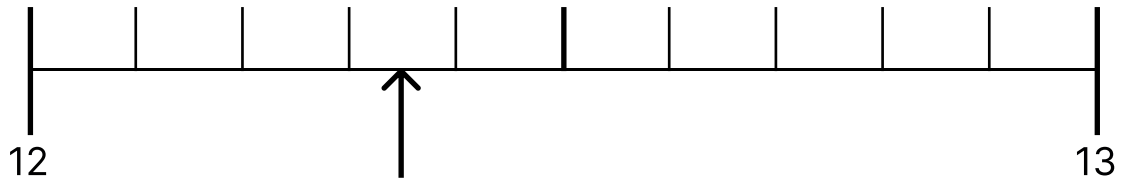
A 12.3   **B** 12.35   **C** 12.4   **D** 12.45   **E** 12.7

---

13 The pie chart below shows the birds that visited a birdhouse.

9 robins visited the birdhouse, $\frac{1}{8}$ of all birds.

Blackbirds

Crows

Sparrows

Wrens

Robins
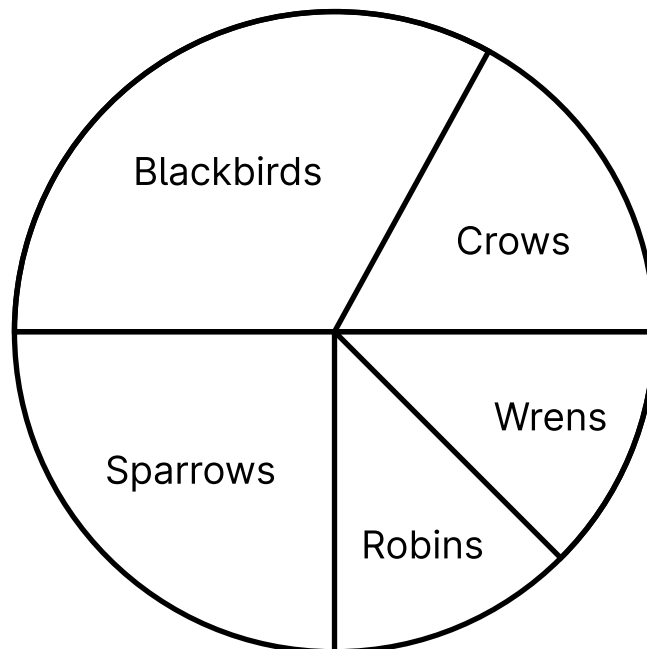
How many birds visited the birdhouse in total?

A 36   **B** 64   **C** 81   **D** 72   **E** 96

---

14 Harry and Hattie are hamsters. Harry weighs 0.147 kilograms and Hattie weighs 0.96 kilograms.

What is their combined weight in grams?

A 1.107 g

B 11.07 g

C 110.7 g

D 1 107 g

E 11 070 g

---

15 Fisayo thinks of a number.
He multiplies this number by itself.
Then he adds 33.
His answer is 49.

What number did Fisayo think of originally?

A 4   B 5   C 7   D 12   E 16

---

16 **What is the lowest common multiple of 6 and 8?**

A 12   B 18   C 24   D 32   E 48

---

17 **0.04 × 0 =**

A 0.004   B 0.04   C 0.4   D 0   E 4

18 Akira cuts a regular octagon in half vertically. He then divides one of these halves into 4 identical pieces.
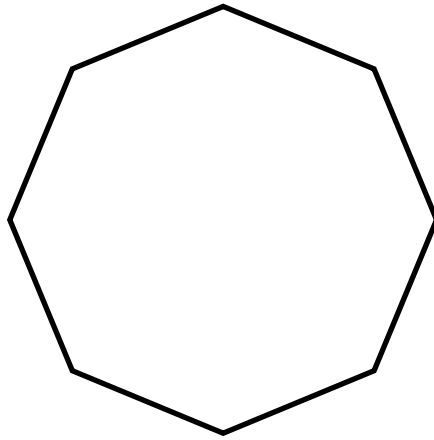
What shape are these identical pieces?

A   Triangle

B   Hexagon

C   Trapezium

D   Rhombus

E   Kite

---

19 The temperature is currently 5°C. Tomorrow, the temperature will be 13°C colder.

What is tomorrow's temperature predicted to be?

A -13°C   B -8°C   C -7°C   D 8°C   E 18°C

---

20 The graph shows the distance travelled by a cat over 10 hours.
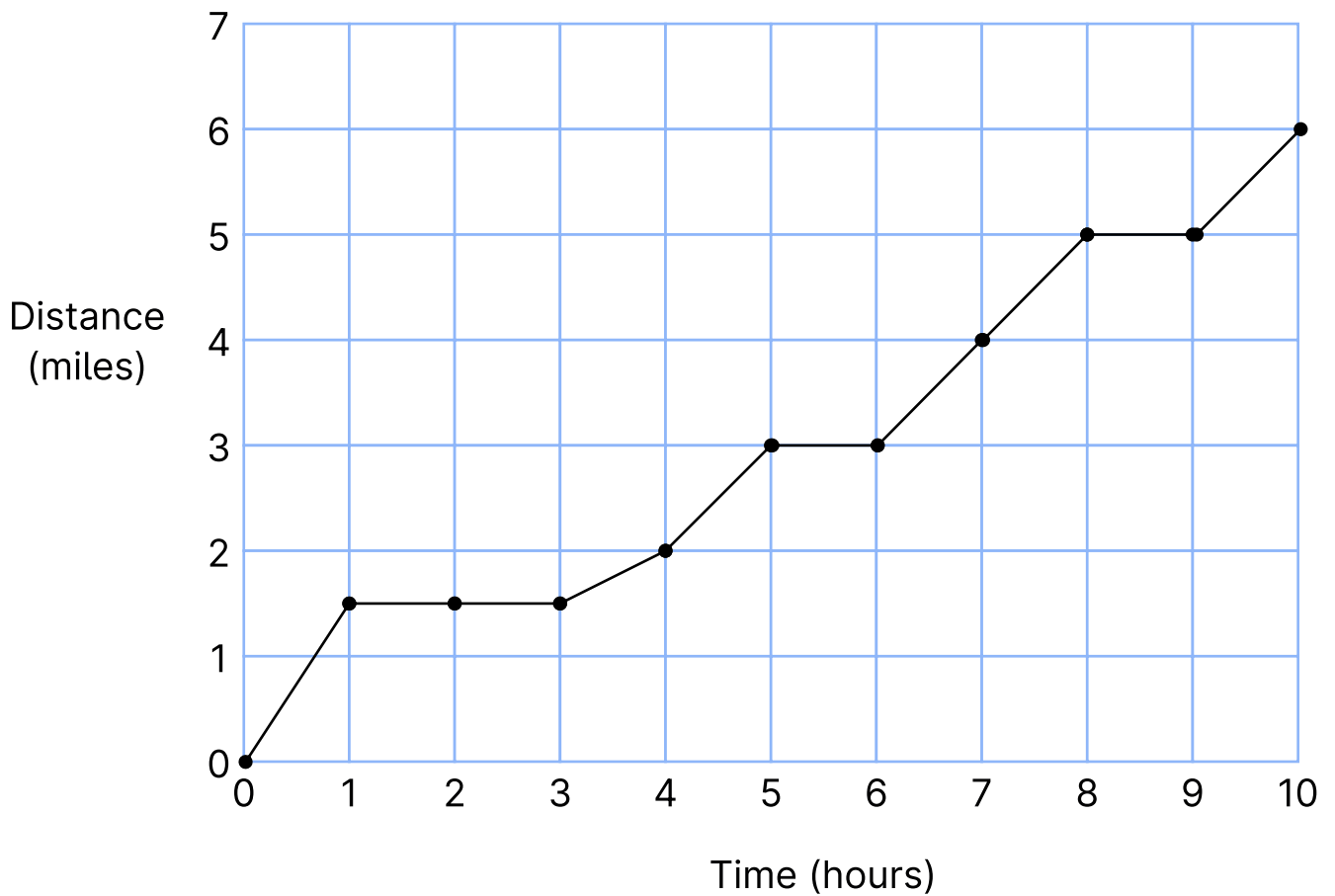
In which two-hour period did the cat travel the furthest distance?

A 0 to 2 hours

B 2 to 4 hours

C 4 to 6 hours

D 6 to 8 hours

E 8 to 10 hours

21

The perimeter of a square is 36 cm.

What is the square's area?

A 6 cm²

B 9 cm²

C 24 cm²

D 36 cm²

E 81 cm²

22

Sneha buys a new house plant. The plant is 4 cm tall.
Each month, the plant triples in height.
The plant is now 108 cm tall.

How many months has it been?

A 3   B 4   C 12   D 27   E 36

23

Which fraction is equivalent to $\frac{8}{42}$ **?**

A $\frac{1}{6}$ B $\frac{1}{7}$ C $\frac{2}{11}$ D $\frac{3}{14}$ E $\frac{4}{21}$

---

24 A clock shows 4 o'clock.

What is the obtuse angle formed between the clock hands?

A 96°

B 100°

C 120°

D 140°

E 160°

---

25 Otto is turning 121 today.
He wants to blow out 121 new birthday candles.
Birthday candles come in packs of 15.

How many packs of birthday candles should Otto buy?

A 6   B 7   C 8   D 9   E 24

---

26 This shape has 2 pairs of parallel sides and 2 pairs of equal angles.

Which shape is being described?

A Polygon

B Pentagon

C Trapezium

D Rhombus

E Kite

---

27 This shape is formed from an equilateral triangle and two squares.
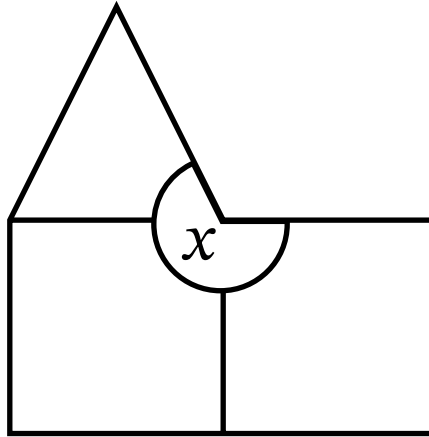
What is angle x?

A 200°   **B** 210°   **C** 220°   **D** 230°   **E** 240°

---

28 **How many eighths are there in 16?**

A 2   **B** 64   **C** 96   **D** 128   **E** 200

29

$$48 \times 714 = 34\ 272$$

What is 48 × 357?

A 8 568   **B** 17 136   **C** 17 248   **D** 18 036   **E** 69 972

---

30 **Which of these is NOT a prime number?**

A 47   **B** 63   **C** 73   **D** 97   **E** 101

31 Maria goes on a 20 km run.
She sets off at a quarter to three and finishes her run at ten to five.

How long does Maria's run last?

A 75 minutes

B 95 minutes

C 110 minutes

D 125 minutes

E 145 minutes

---

32 Kamilla and Carlos both choose one of the cards below.

| 4 | 5 | 6 | 7 | 8 | 9 |
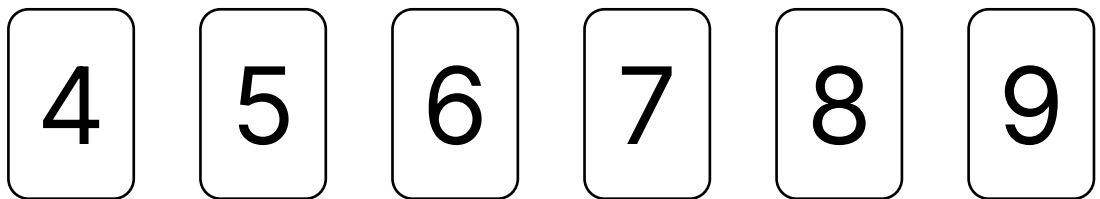
When Kamilla and Carlos multiply together the numbers on their cards, the result is a square number.

Carlos chooses 4.

Which card did Kamilla choose?

A 5   B 6   C 7   D 8   E 9

---

33 A cardboard box contains 16 tins of chickpeas and weighs 9 kilograms.

The empty box weighs 600 grams.

How much does one tin of chickpeas weigh?

A 525 g   **B** 550 g   **C** 575 g   **D** 600 g   **E** 625 g

---

34 Points J and K are two corners of an isosceles triangle.
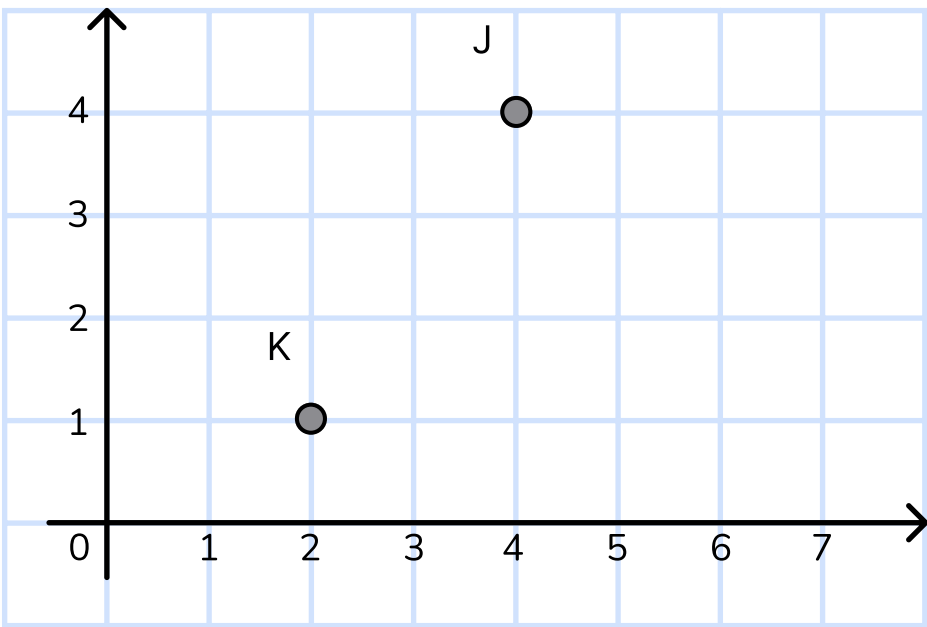
Which coordinate could mark the third corner?

A (1, 6)   **B** (5, 1)   **C** (6, 1)   **D** (6, 2)   **E** (7, 1)

---

35 A 4×4 cube is made up of 1 cm cubes.
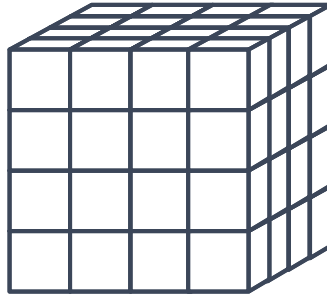
How many of the small cubes have exactly ONE face showing?

A 4   B 16   C 24   D 32   E 64

---

36 Anna, Max and Sasha are sharing a baguette.
The baguette is 62.7 cm long.
Each person gets an equally long piece of the baguette.

How long is each piece of the baguette?

A 2.09 mm

B 20.9 mm

C 2.09 cm

D 20.9 cm

E 209 cm

---

37 **Which of these is the smallest?**

A $\dfrac{1}{8}$ B 11%   C 0.15   D $\dfrac{4}{25}$ E 12.5%

---

38 Karwei, Chiwei and Hong discuss how old they are.
Right now, Karwei is triple Hong's age.
In two years' time, Chiwei will be 10, half the age that Karwei will be.

How old is Hong right now?

A 6   B 8   C 9   D 11   E 18

---

39 This Venn diagram shows all of the factors of two numbers.
There are two missing factors.
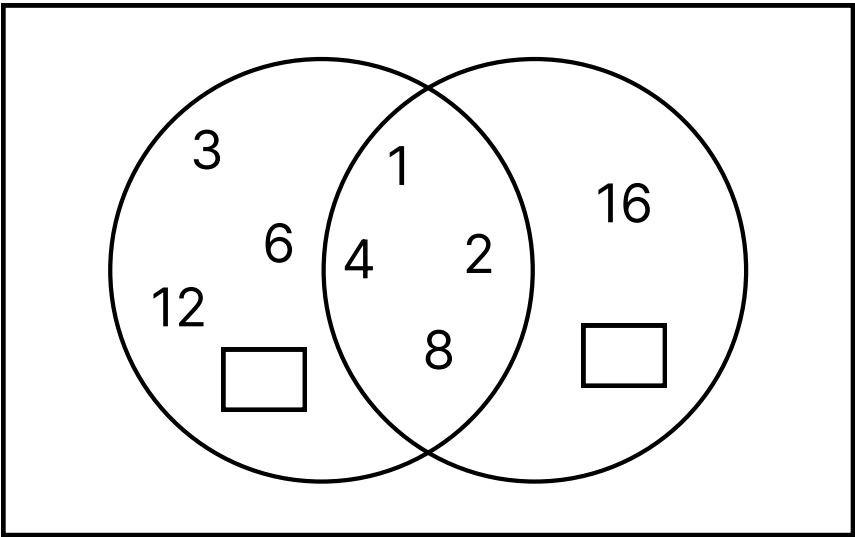
What could the two missing factors be?

A 18 and 24

B 24 and 32

C 24 and 42

D 24 and 48

E 32 and 72

---

40 The table below shows the minimum and maximum heights for different rides at a theme park.

Ride	Minimum Height	Maximum Height
The Grin	140 cm	195 cm
The Whizzer	120 cm	196 cm
Raging River	110 cm	184 cm
The Tormenter	95 cm	167 cm
The Twirler	90 cm	156 cm

Which ride shows the greatest difference between the minimum and maximum height?

A The Grin

B The Whizzer

C Raging River

D The Tormenter

E The Twirler

---

41 30% of ☐ = 621

What is the missing number?

A 186.3   B 207   C 1 863   D 2 070   E 18 630

---

42 Rodrigo draws a rectangle with corners at (3, 1), (3, 4), (6, 1) and (6, 4).

Which of these points is outside Rodrigo's rectangle?

A (4, 4)　　**B** (5, 3)　　**C** (4, 1)　　**D** (3, 5)　　**E** (5, 4)

---

43 There are two playgrounds at Riverbrook school.
Britney runs around the perimeter of Playground A and Johan runs around the perimeter of Playground B.

160 m

100 m

80 m　　**A**

B　　120 m
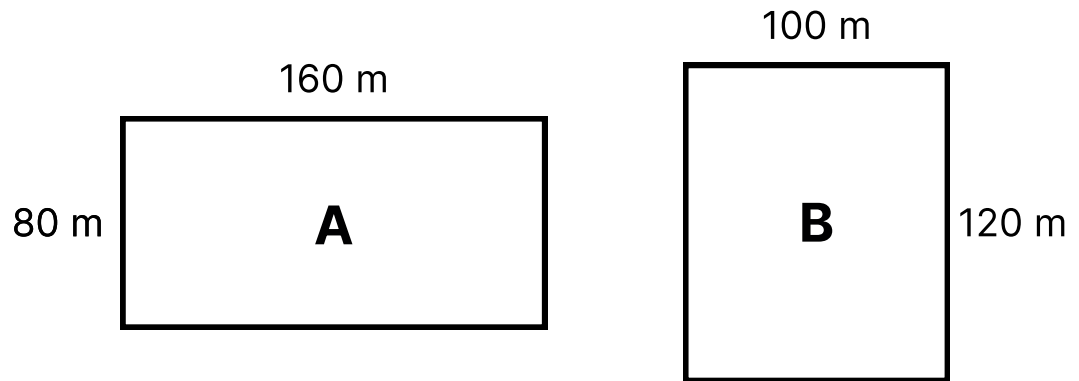
What is the difference between the distances run by Britney and Johan?

A 40 m　　**B** 80 m　　**C** 440 m　　**D** 480 m　　**E** 800 m

---

44 What is $8\frac{1}{4} \times 3$?

A $8\frac{3}{4}$　　**B** $8\frac{3}{12}$　　**C** $\frac{25}{4}$　　**D** $24\frac{1}{4}$　　**E** $24\frac{3}{4}$

---

45 Zoe spends £35.97 on clothes.
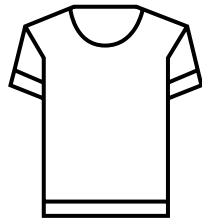
T-shirt
£12.99
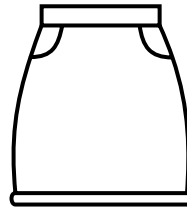
Skirt
£17.99
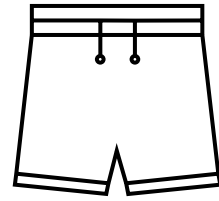
Shorts
£9.99

Which of the following could she have bought?

A One t-shirt and one skirt

B Two skirts

C One t-shirt, one skirt and one pair of shorts

D Two t-shirts and one pair of shorts

E Three t-shirts

46 **If March 10th is a Tuesday, what day of the week is May 1st?**

A Wednesday

B Thursday

C Friday

D Saturday

E Sunday

47 Bulut is facing North-East. He spins 585° clockwise on the spot.
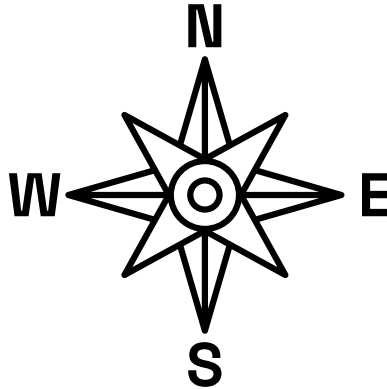
Which direction is Bulut now facing?

A East

B South-East

C South

D South-West

E West

---

48 Elif owns 30 pens.
The pens are either green, black or blue.
For every green pen Elif owns, she has 6 black pens.
Elif owns half as many blue pens as she does black pens.

How many blue pens does Elif own?

A 3   B 6   C 9   D 12   E 15

---

49 An adult ticket costs £16.50.
A child ticket costs half as much as an adult ticket.
A bundle ticket (1 adult, up to 3 children) costs £32.

A group made up of 1 adult and 3 children buy a bundle ticket.

How much money did they save?

A £8.25   **B** £9.25   **C** £16.50   **D** £33   **E** £41.25

---

50 A shop offers 4 different flavours of ice-cream: vanilla, chocolate, strawberry and mint.

Penelope orders 2 scoops of ice-cream.
Each scoop of ice-cream is a different flavour.

How many different combinations of ice-cream could Penelope have ordered?

A 6   **B** 8   **C** 10   **D** 12   **E** 16

Get ready for exam day. Visit:

atomlearning.com

11+ Mathematics Paper Parents' Guide

Atom. Learning

About this test

This is a multiple-choice paper designed to familiarise your child with the types of questions they will see in an 11 plus maths exam.

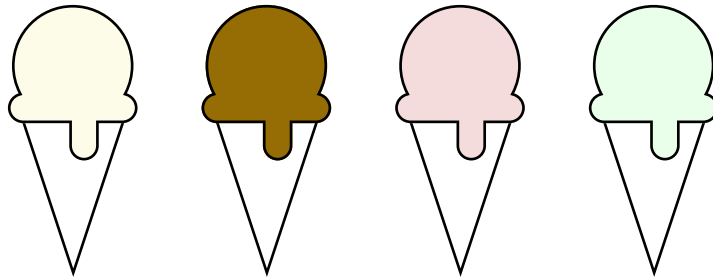There are 50 questions which gradually increase in difficulty. It covers topics from the national curriculum, including number, measurement, geometry and statistics.

What you'll need

- Printed question booklet and answer sheet
- Pencil
- Rubber
- Scrap paper
- Timer

How to prepare

Your child should take the test at a time when they feel alert. Choose a quiet area where they can work comfortably without distractions.

Talk with your child about the reasons for taking the practice test. Explain that this paper looks similar to the one they will see in the real 11 plus exam. The questions and answer sheet will help them know what to expect on exam day.

Explain that they might find some of the questions difficult, especially as they progress through the paper. They should work as quickly and carefully as possible.

If they get stuck on a question, they should move on to the next one. If they have time left over at the end, they can go back to any skipped questions. If they have more time left over, they should check their answers.

11+ Mathematics Paper Parents' Guide

Taking the test

Calculators are not allowed. Give your child a scrap sheet of paper and encourage them to use it for any rough working out.

Your child should mark their answers on the **Answer Sheet**, not in the test booklet. This is good practice for the real exam which will have a separate answer sheet like this.

On the Answer Sheet, your child should record their answers by drawing a clear line through the answer box with a pencil. Mistakes should be rubbed out and not crossed out. The real exam is marked by a computer, so it would not be able to interpret a crossed-out answer.

Timing

It's helpful for children to get comfortable with taking tests under timed conditions. You should allow them **50 minutes** to take the test. Only start timing when they have finished reading the instructions.

If they haven't finished the test after 50 minutes, circle the question they got to, then let them carry on. When you mark the test you'll be able to see how many questions they got right in 50 minutes and how many overall. This will show you whether your child needs to work on their speed, accuracy, or both.

Marking

You can find the answers on the **Answer Key**. Give your child one mark for each correct answer (no half-marks are available in the real test!). Do not take marks off for wrong answers.

Take time to discuss your child's results in a positive and encouraging way. Work through the corrections, what they would do differently next time, and pick out key areas to revise next.

11+ Mathematics Paper Answer Key

1. **D** **430 161**

2. **D** **17**

3. **C** **23**

4. **B** **Oxford**

5. **C** **8 cm**

6. **E** **£25.80**

7. **A** **13**

8. **C** **27**

9. **A** $\dfrac{1}{20}$

10. **C** **16:15**

11. **C** **32**

12. **B** **12.35**

13. **D** **72**

14. **D** **1 107 g**

15. **A** **4**

16. **C** **24**

17. **D** **0**

18. **A** **Triangle**

19. **B** **-8°C**

20. **D** **6 to 8 hours**

21. **E** **81 cm²**

22. **A** **3**

23. **E** $\dfrac{4}{21}$

24. **C** **120°**

25. **D** **9**

26. **D** **Rhombus**

27. **E** **240°**

28. **D** **128**

29. **B** **17 136**

30. **B** **63**

31. **D** **125 minutes**

32. **E** **9**

33. **A** **525 g**

34. **C** **(6, 1)**

35. **C** **24**

36. **D** **20.9 cm**

37. **B** **11%**

38. **A** **6**

39. **B** **24 and 32**

40. **B** **The Whizzer**

41. **D** **2 070**

42. **D** **(3, 5)**

43. **A** **40 m**

44. **E** $24\dfrac{3}{4}$

45. **D** **Two t-shirts and one pair of shorts**

46. **C** **Friday**

47. **E** **West**

48. **C** **9**

49. **B** **£9.25**

50. **A** **6**