Student application number	S	2	6	0					

First name(s) _____

Family name _____

Selective High School Placement Test

Mathematical Reasoning Question Paper

Practice Test 4 — 40 minutes

INSTRUCTIONS FOR CANDIDATES

Please read this page carefully.

DO NOT OPEN THIS QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO.

Please fill in the following information on this question paper:

- Student application number
- First name(s)
- Family name

There are **35** questions in this paper.

There are **two** question types:

1. For some questions, there are five possible answers: **A**, **B**, **C**, **D** and **E**. Circle the **one** correct answer.
2. For some questions, there may be more than one correct answer. Please tick ✓ **all** options that are correct.

If you make a mistake, erase thoroughly and try again.

You will **not** lose marks for incorrect answers, so you should attempt **all 35** questions.

Calculators and dictionaries are **NOT** allowed.

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1 Here are the costs for a car park:

Between 0800 and 1700	$2.25 per hour
Between 1700 and 2300	$1.00 per hour

Coen arrives at the car park at 3 pm and leaves at 9 pm on the same day.

How much does he pay for parking?

A $6.50

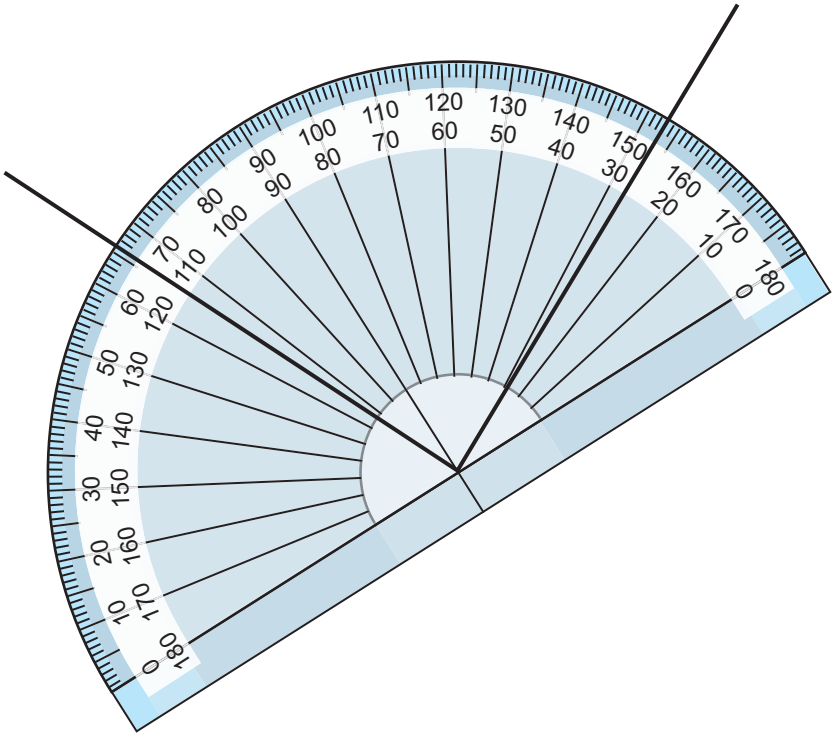
B $8.50

C $11.00

D $13.00

E $13.50

2 A student is trying to measure the acute angle between two lines.
They place a protractor like this:



What is the size of this angle in degrees?

A 66°

B 79°

C 81°

D 87°

E 93°

3 What is the answer to the calculation below?

$$\frac{1}{2}+\frac{1}{2}+\frac{1}{3}+\frac{1}{3}+\frac{1}{3}+\frac{2}{4}+\frac{3}{4}$$

A $\frac{10}{9}$

B $\frac{10}{21}$

C $2\frac{1}{4}$

D $2\frac{5}{8}$

E $3\frac{1}{4}$

4 92 people are going on a trip.

First they will fill two large minibuses, each with space for 17 people.

The rest of the people will travel in small minibuses, each with space for 8 people.

How many minibuses do they need in total?

A 7

B 8

C 9

D 10

E 11

5 Which of the following calculations has the largest answer?

A 1×0.5

B 10×0.0127

C 10×0.052

D 100×0.0039

E 100×0.00074

6 Here is a number sentence:

$456 + 456 + 456 = 6 \times \blacksquare$

What number does ■ represent?

A 223

B 228

C 912

D 4103

E 8208

7 On Monday, Monique had some money.

On Tuesday, she spent $\frac{4}{5}$ of the money. After that she had \$80 left.

How much money did Monique have on Monday?

A \$20

B \$64

C \$100

D \$320

E \$400

8 Here are the masses of five objects:

$\frac{1}{4}$ kg 35 g 0.3 kg 25 g 2.5 kg

When the objects are placed in order from lightest to heaviest, what is the mass of the middle object?

A $\frac{1}{4}$ kg

B 35 g

C 0.3 kg

D 25 g

E 2.5 kg

9 I grow three types of vegetable in my garden.

The table below shows when to plant the seeds and when to pick the vegetables.

vegetable	action	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
beetroot	plant	✓									✓	✓	✓
	pick	✓	✓	✓	✓								
eggplant	plant							✓	✓	✓			
	pick		✓	✓	✓								
carrot	plant	✓								✓	✓	✓	✓
	pick	✓	✓	✓	✓	✓							✓

Which of the following statements is/are correct?
Tick ✓ all that apply.

- ☐ There are 7 months when I can pick both beetroot and eggplant.
- ☐ There is only 1 month of the year when I cannot plant any of these vegetables.
- ☐ If it is a month when I can plant beetroot, I can also plant carrots.
- ☐ None of the above.

10 Yesterday, Lan, Marco and Niki had 26 marbles in total.
Lan and Marco had 20 marbles in total.

Today, Marco gave 5 of his marbles to Niki.
Now Marco and Niki both have the same number of marbles.

How many marbles do Lan and Niki have in total now?

A 15

B 17

C 19

D 20

E 25

11 In a video game, players collect coins.

Kira scores 8 points for the first coin she collects.

Then she scores 3 points for each coin she collects after that.

She wants to score at least 120 points altogether.

What is the smallest number of coins Kira must collect?

A 15

B 32

C 37

D 38

E 39

12 Five children take it in turn to do a balancing challenge, with each child completing it once.

The first child balances for 12 minutes.

After that, each child balances for half as long as the previous child.

What is the total time the five children are balancing?

A 21 minutes 30 seconds

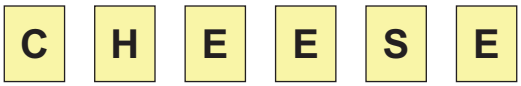
B 22 minutes 15 seconds

C 22 minutes 30 seconds

D 23 minutes 15 seconds

E 23 minutes 45 seconds

13 Jonas writes each letter of the word CHEESE on a card:



Keeva writes each letter of the word BEES on a card:



Jonas and Keeva each pick one of their own cards at random.

Which of the following statements is/are correct?
Tick ✓ all that apply.

- ☐ The probability that Jonas will pick the letter C is $\frac{1}{4}$
- ☐ The probability that Jonas will pick the letter S is the same as the probability that Keeva will pick the letter S.
- ☐ It is more likely that Jonas will pick a letter E than Keeva will pick a letter E.
- ☐ None of the above.

14 Valerie says:

> "I think of my favourite number, which is between 0 and 100.
>
> Then I subtract a multiple of 7 that is greater than zero.
>
> I get the answer 59."

Stan wants to guess Valerie's favourite number.
He realises there is more than one possibility.

How many possibilities are there?

A 4

B 5

C 6

D 7

E 8

15 Hal, Irene and Khaled decide to share 4 packets of stickers.
In each packet there are 6 stickers.

First, Hal takes $\frac{4}{6}$ of the stickers from each of 3 packets.

Then Irene and Khaled share all the remaining stickers.
After this, Khaled has twice as many stickers as Irene.

How many stickers does Irene have?

A 4

B 5

C 6

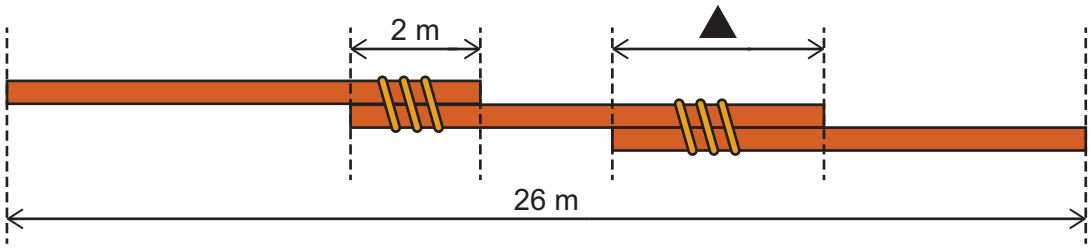
D 10

E 11

16 Three identical rods are each 12 metres long.

They are tied together with their ends overlapping, as shown below.

On the diagram, ▲ represents a distance.



[diagram not to scale]

What distance does ▲ represent?

A 3 m

B 4 m

C 6 m

D 7 m

E 8 m

17 Ishaan will choose a whole number that rounds to 800 to the nearest hundred.

Jesse will choose a whole number that rounds to 1000 to the nearest hundred.

What is the largest possible difference between Ishaan's number and Jesse's number?

A 101

B 200

C 299

D 400

E 749

18 Nidhi and Chris each choose outfits by picking a T-shirt and a skirt.

Nidhi has 3 T-shirts and some skirts. She can choose 24 different outfits.

Chris has the same number of skirts as Nidhi. She also has 2 T-shirts.

How many different outfits can Chris choose?

A 4

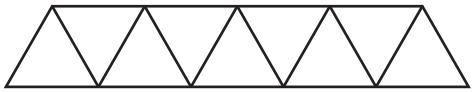
B 16

C 20

D 23

E 25

19 The shape below is made up of identical equilateral triangles.



Each equilateral triangle has a perimeter of 6 centimetres.

What is the perimeter of the shape?

A 22 cm

B 33 cm

C 38 cm

D 54 cm

E 66 cm

20 A robot climbs all the way up and down a ladder repeatedly, without stopping.

It takes the robot 10 seconds to go up and 8 seconds to come down each time.

The robot starts at the bottom of the ladder each time.

How many times will the robot reach the top of the ladder in the next 2 minutes?

A 6

B 7

C 11

D 12

E 13

21 Michael has five straws with lengths 2 cm, 5 cm, 8 cm, 11 cm and 14 cm.

He wants to choose three of the straws, so that their lengths add up to an odd number of centimetres.

In how many different ways can Michael do this?

A 4

B 5

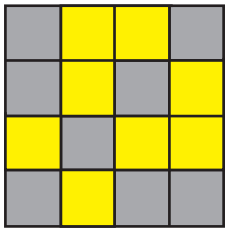
C 6

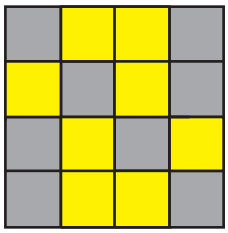
D 8

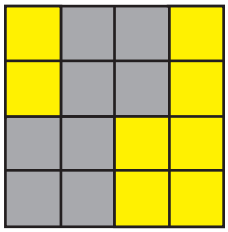
E 9

22 Which of these shapes have/has rotational symmetry?

Tick ✓ all that apply.

☐ 

☐ 

☐ 

☐ none of the above

23 Shireen asks some people how many pets they own.

The table shows her results.

number of pets	number of people
0	7
1	12
2	6
3	9
4	5

What is the total number of pets owned by all these people?

A 10

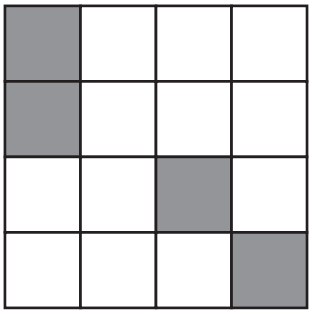
B 39

C 49

D 71

E 78

24 Jemima shades 4 squares on a square grid:



Now Nate wants to shade some squares so that the grid has exactly two lines of symmetry.

What is the smallest number of squares Nate needs to shade?

A 2

B 4

C 6

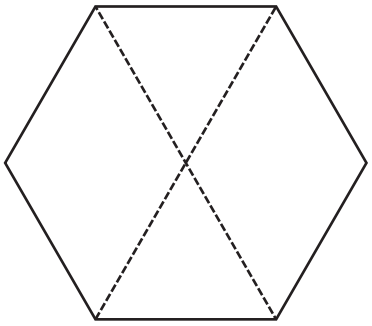
D 8

E 10

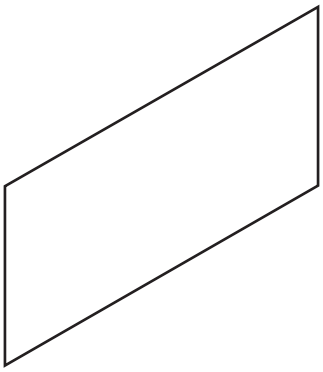
25 Kingsley has a regular hexagon. Its area is 48 square centimetres.

He draws two dashed straight lines joining opposite corners of the hexagon.

He cuts along the dashed lines to make four shapes.



He joins 3 of the shapes to make a parallelogram. These shapes do not overlap.



What is the area of the parallelogram?

A 24 cm^2

B 28 cm^2

C 32 cm^2

D 36 cm^2

E 40 cm^2

26 Prem has a 3D object.

The edges are all the same length.
Each edge is a whole number of centimetres long.

The total length of the edges is 48 cm.

Which of the following is/are possibilities for Prem's object?
Tick ✓ all that apply.

- ☐ triangular prism
- ☐ square pyramid
- ☐ triangular pyramid
- ☐ none of the above

27 The first three numbers in a number pattern are:

16, 20, 24, …

The last number is 404.

How many numbers are in this number pattern?

A 92

B 93

C 97

D 98

E 101

28 Milly goes swimming every 3rd day.
Her first two swimming days are 1st and 4th January.

Konol goes swimming every 2nd day.
His first two swimming days are 1st and 3rd January.

January						
Mo	Tu	We	Th	Fr	Sa	Su
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

February						
Mo	Tu	We	Th	Fr	Sa	Su
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

They both go swimming on 1st January, which is a Monday.

What is the date of the next Monday when they both go swimming?

A 15th January

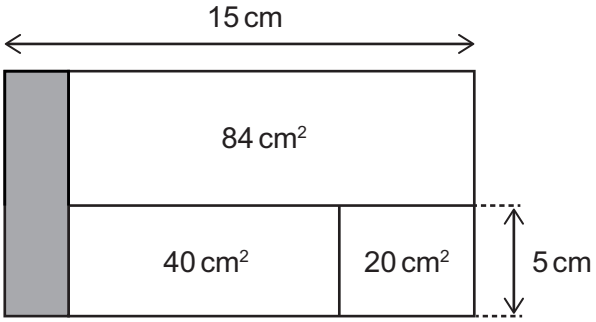
B 22nd January

C 29th January

D 5th February

E 12th February

29 A large rectangle is divided into four smaller rectangles, as shown.



[diagram not to scale]

What is the area of the shaded rectangle?

A 15 cm^2

B 21 cm^2

C 30 cm^2

D 36 cm^2

E 48 cm^2

30 Elias thinks of an **even** number.
■ represents his number.

When he divides ■ by 2 and then rounds the result to the nearest 10, he gets 50.

▲ is the sum of the digits of ■.

What is the largest possible value of ▲?

A 1

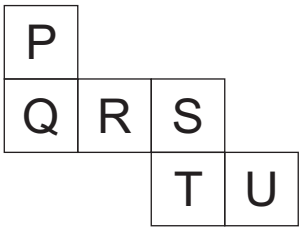
B 9

C 13

D 17

E 18

31 The net below is folded to form a cube.



Which of the following statements about the cube is/are correct?
Tick ✓ all that apply.

- [ ] The faces labelled Q and T meet at one edge and two vertices.
- [ ] The faces labelled P and U are opposite each other.
- [ ] There is a vertex where the faces labelled P, R and U all meet.
- [ ] None of the above.

32 The table shows the numbers of goals Desmond's soccer team scored in the past 3 years.

year	number of goals
2023	64
2024	56
2025	48

Desmond wants to make a picture graph to show the number of goals scored each year.

He can draw whole soccer balls and half soccer balls:



He will not draw any other fractions of a soccer ball.

Which of these keys is/are possible for Desmond to use?
Tick ✓ all that apply.

☐  represents 8 goals  represents 4 goals

☐  represents 12 goals  represents 6 goals

☐  represents 16 goals  represents 8 goals

☐ none of the above

33 Elin has a measuring jug containing some water.

She also has some identical blocks and some identical spheres.
They sink in water.

Elin puts some of these objects in the jug and reads the level of the water.
She writes the results in this table:

objects under the water	level of water in the jug
2 blocks	54 mL
1 block and 3 spheres	54 mL
3 blocks and 3 spheres	66 mL
1 block and 1 sphere	?

What is the level of the water when 1 block and 1 sphere are under the water?

A 22 mL

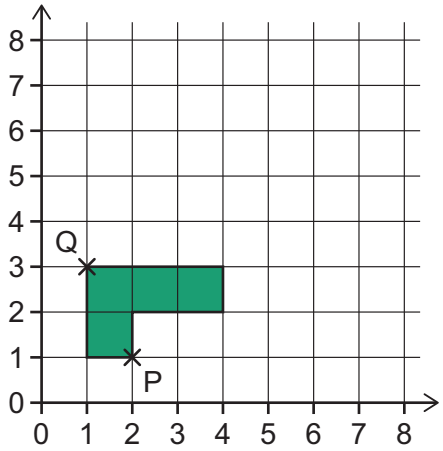
B 36 mL

C 50 mL

D 51 mL

E 66 mL

34 The diagram shows a shape on the number plane.
Two vertices of the shape are labelled P and Q.



The shape is rotated a quarter-turn anti-clockwise.
Then the rotated shape is translated.

After this, the new coordinates of vertex P are (6, 3).

What are the new coordinates of vertex Q?

A (4, 2)

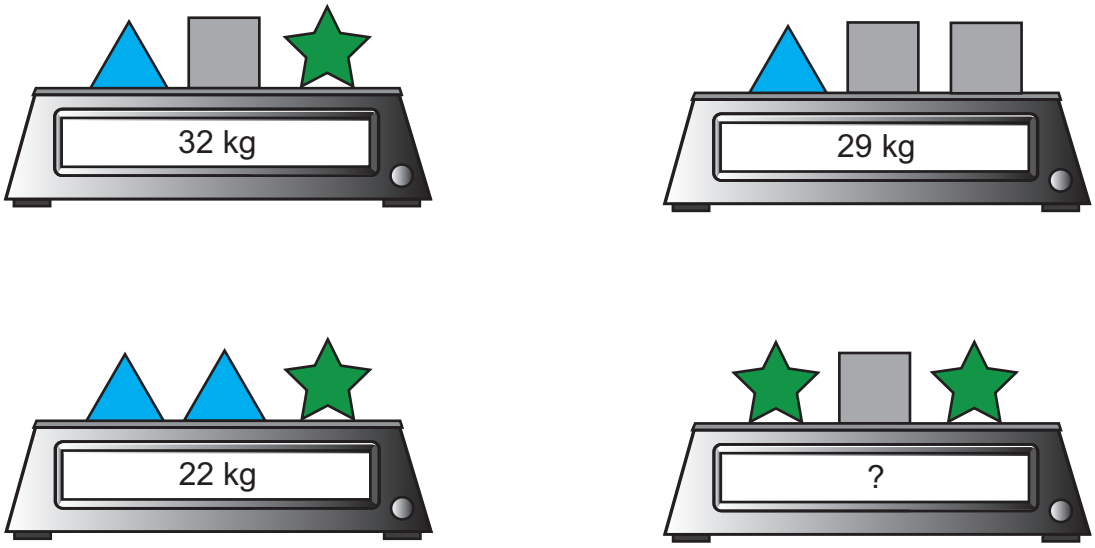
B (5, 1)

C (5, 5)

D (8, 2)

E (8, 4)

35 Below are four sets of scales. Objects that are the same shape always have the same mass.



What is the total mass of the objects on the fourth scale?

A 13 kg

B 35 kg

C 36 kg

D 39 kg

E 45 kg

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