

## Selective School Placement Test

### Free Sample Paper

# Mathematical Reasoning

### *Instructions:*

There are usually 35 questions in this test, but as this is just a sample paper there are only 20 questions in this test.

For each question there are 5 possible answers, A, B, C, D or E. Choose one correct answer for each question.

You have **20 minutes** to complete this test (usually 40 minutes)

You will not lose marks for incorrect answers, so you should attempt all 20 questions.

Calculators and dictionaries are not allowed in the test.

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This paper has been designed to replicate the questions that are asked in the real selective school test.

The purpose of taking a practice test is to familiarise yourself with the types of questions you will be asked. The more comfortable you can be with the questions, the faster and more accurate you will be in the test!

Every question is unique - even if it looks similar to one you have already attempted there will be something unique about it that requires you to think differently. If you start recognising question types this is a good thing! It will give you a huge advantage in the test.

For more details about the test, Alchemy Tuition or our selective school preparation program please visit our website at [www.alchemytuition.com.au](http://www.alchemytuition.com.au) or [www.selectiveschooltutoring.com.au](http://www.selectiveschooltutoring.com.au).

1.

This is called a **magic square**.

8	1	6
4		★

Each row, column and diagonal add up to the same total.

In the magic square about, some numbers are missing.

What is the missing number at ★?

- a. 9
  - b. 6
  - c. 11
  - d. 13
  - e. 2
- 

2.

Caley and Alex are playing with two regular 6 sided dice.

Caley rolls first, combines the numbers on each dice and gets a total score of 7.

Alex rolls both dice next. Which statements are correct?

- 1. The lowest score Alex could get is 2
  - 2. Alex has a  $\frac{1}{6}$  chance of rolling a 7 too
  - 3. The probability of Alex rolling a 4 or lower is  $\frac{1}{6}$
- 
- a. None of them
  - b. Statements 1 and 2 only
  - c. Statements 1 and 3 only
  - d. Statements 2 and 3 only

- e. All statements are true
- 

**3.**

A jug weighs 550g.

When the jug is one quarter full of milk, the jug and the milk together weigh 750g.

If the jug is full of milk, how much will it weigh?

- a. 1.2kg
  - b. 1.35kg
  - c. 1.45kg
  - d. 1.4kg
  - e. 1.32kg
- 

**4.**

John and Cadey are asked to round the number 3 290 000.

John rounds it to the nearest million.

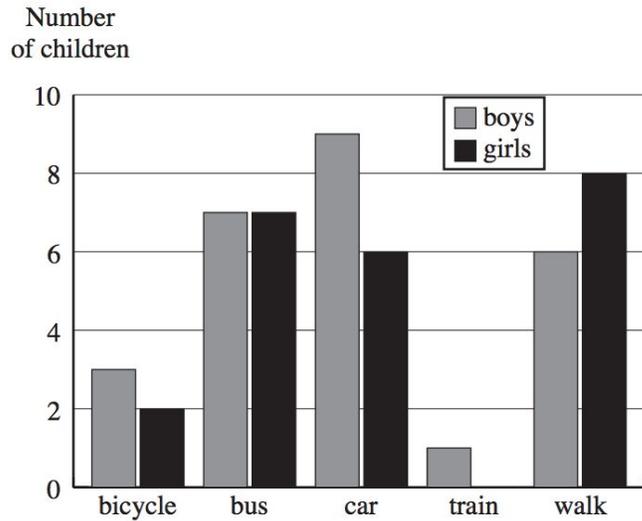
Cadey rounds it to the nearest hundred thousand.

What is the difference between their answers?

- a. 500 000
  - b. 1 000 000
  - c. 300 000
  - d. 700 000
  - e. 2 000 000
- 

**5.**

This graph shows how the students in year 6 get to school each day:



Which of these statements are true?

1. There are 40 students in year 6.
  2. More girls ride their bike to school than boys.
  3. Twice as many boys drive to school than girls.
- 
- a. None of them
  - b. Statement 1 and 2 only
  - c. Statement 1 and 3 only
  - d. Statement 2 and 3 only
  - e. All of them

---

**6.**

Dave bought 4 pizzas to share with Sam, Rich and Matt.

Sam ate  $\frac{1}{4}$  of a pizza.

Rich ate  $1\frac{1}{4}$  of a pizza.

Matt ate  $\frac{2}{3}$  of a pizza.

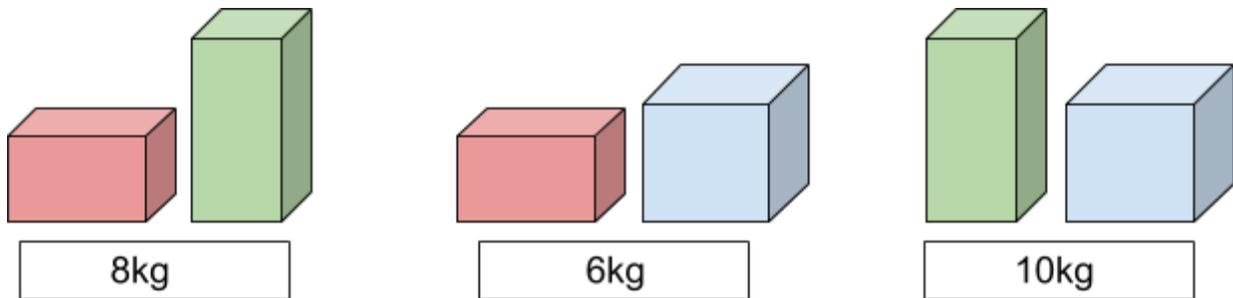
Dave ate all of the pizza that was left.

How much more pizza did Dave eat than Sam?

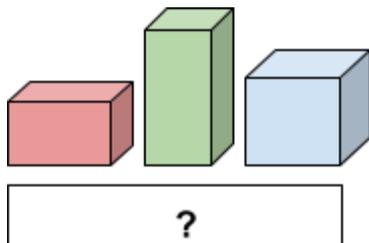
- a.  $\frac{2}{3}$
  - b.  $\frac{3}{4}$
  - c.  $\frac{4}{5}$
  - d.  $1\frac{1}{3}$
  - e.  $1\frac{2}{3}$
- 

7.

Lauren has some packages to send in the mail. She places them on a scale in pairs, as shown below.



When the three boxes are weighed together, what is the combined weight?



- a. 12kg

- b. 16kg
  - c. 14kg
  - d. 18kg
  - e. 10kg
- 

**8.**

What is the sum of the number of faces, the number of edges and the number of vertices of a pyramid with a square base?

- a. 16
  - b. 12
  - c. 22
  - d. 18
  - e. 20
- 

**9.**

In our number system, the value represented by a digit depends on its position.

For example, in the number 273, the digit 7 represents 70.

In the number 60 020, how many times larger is the value represented by the digit 6 than the value represented by the digit 2?

- a. 100 times
  - b. 500 times
  - c. 1000 times
  - d. 2000 times
  - e. 3000 times
- 

**10.**

Bridget lives in Toronto, Canada and visits her cousin Matt, who lives in Sydney, Australia.

Bridget leaves Toronto on Saturday at 1300 local time on a 6-hour flight to Los Angeles.

She spends 24 hours in Los Angeles.

She then catches a 20-hour flight to Sydney.

The time in Toronto is 17 hours behind the time in Sydney.

What time is it in Sydney when Bridget arrives?

- a. Tuesday at 0800
  - b. Wednesday at 1100
  - c. Saturday at 2200
  - d. Sunday at 1500
  - e. Sunday at 2300
- 

**11.**

This square has an area of 400 square centimetres.



A new smaller square is made: all the sides are decreased to one quarter of their original length.

The area of the smaller square is:

- a.  $25\text{cm}^2$
- b.  $50\text{cm}^2$
- c.  $100\text{cm}^2$

- d.  $150\text{cm}^2$
  - e.  $200\text{cm}^2$
- 

**12.**

James is making some cordial.

He puts some cordial syrup into a 2.5 liter jug, filling it  $\frac{1}{10}$ th of the way.

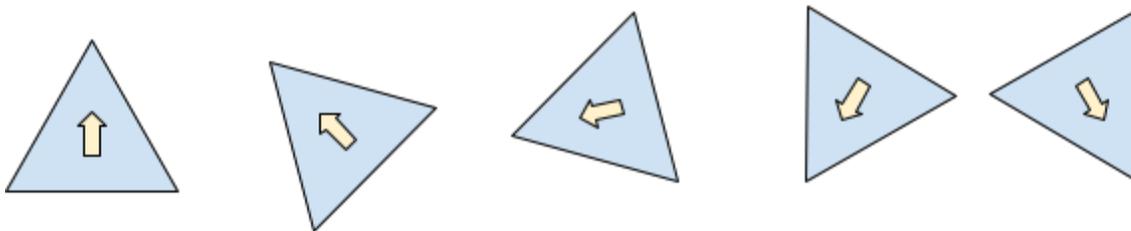
He then adds 3 times as much water to make the cordial ready to drink.

How much more water would he need to add to fill the jug completely?

- a. 750mL
  - b. 1250mL
  - c. 1500mL
  - d. 1000mL
  - e. 800mL
- 

**13.**

These shapes follow a pattern:



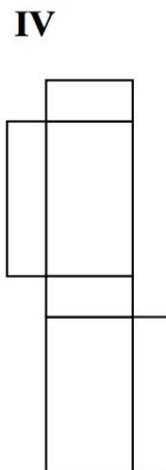
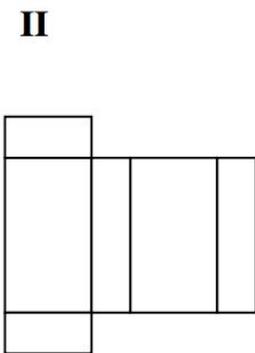
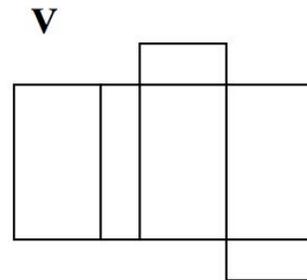
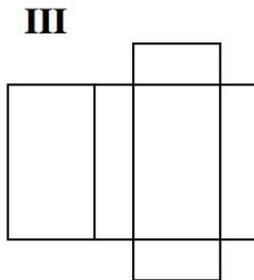
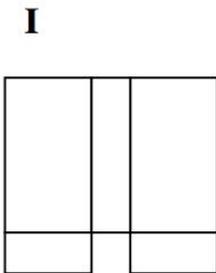
What is the rule for the next shape in the pattern?

- a. Rotate the shape  $60^\circ$  clockwise
- b. Rotate the shape  $60^\circ$  anti-clockwise
- c. Rotate the shape  $45^\circ$  clockwise
- d. Rotate the shape  $45^\circ$  anti-clockwise
- e. Rotate the shape  $90^\circ$  clockwise

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14.

Some of these nets make a rectangular prism, like a cereal box.



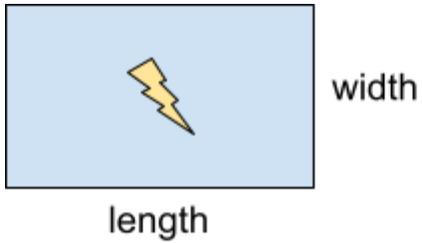
Which ones are they?

- a. II and III only
- b. I, II and IV only
- c. II, III and IV only
- d. III, IV and V only
- e. All of them

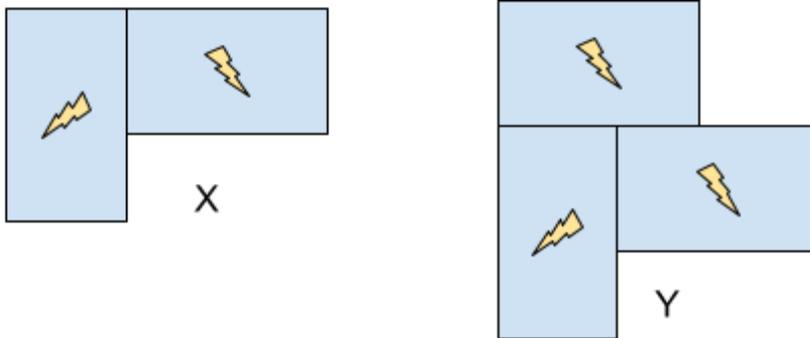
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15.

Brad is making shapes out of rectangular cards.



He makes shape X, then adds another card to make shape Y as seen here:



The perimeter of shape X is 52cm and the perimeter of shape Y is 64cm.

What is the width of each card?

- a. 3cm
- b. 4cm
- c. 6cm
- d. 7cm
- e. 8cm

---

**16.**

Sandra makes a number pattern with the following rules:

- Choose the first three numbers.
- After this, each number is the sum of the three numbers before it.

Here is Sandra's pattern with three missing numbers labelled A, B and C.

2, A, 0, B, 6, C

All the numbers are whole numbers.

What number does C represent?

- a. 6
  - b. 8
  - c. 10
  - d. 12
  - e. 5
- 

**17.**

When Tim and Charlotte got married, 120 of the guests were Charlotte's family or friends.

This was 60 per cent of the total number of guests.

If they paid \$100 per person to attend, how much did their wedding cost altogether?

- a. \$2000
  - b. \$12000
  - c. \$20000
  - d. \$10000
  - e. \$8000
- 

**18.**

How many whole numbers between 1 and 100 are multiples of 9, but are not multiples of 6?

You should include 9 itself.

- a. 5
- b. 6
- c. 7

- d. 8
  - e. 9
- 

**19.**

□ always represents the same number.

△ represents a different number.

If:

$$7 \times \square = 42$$

And:

$$\triangle - \square = 3$$

What is  $\triangle$ ?

- a. 12
  - b. 9
  - c. 6
  - d. 15
  - e. 25
- 

**20.**

Daryl has a glass containing 300mL of juice and a bottle containing 1.5 liters of water.

Daryl drinks 80mL of juice but decides it is too sweet, so adds water from the bottle to the glass until the glass has 500mL of liquid in it.

How much water is left in the bottle?

- a. 1120mL

- b. 1400mL
  - c. 1380mL
  - d. 1220mL
  - e. 1500mL
-

# Answers

## Mathematical Reasoning - Practice Paper 11

Question #	Correct Answer	Question #	Correct Answer
1	E	20	D
2	E		
3	B		
4	C		
5	A		
6	B		
7	A		
8	D		
9	E		
10	A		
11	A		
12	C		
13	D		
14	C		
15	C		
16	C		
17	C		
18	B		
19	B		

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