



This publication assists applicants for Year 7 entry to selective high schools to become more familiar with the Selective High Schools Test.

Some of the items have not been included for copyright reasons. Items that assess reading will be available at a later date.

In the actual Selective High Schools Test there are 45 questions in reading, 40 in mathematics and 60 in general ability.

The Selective High Schools Test measures ability and is set to discriminate at a very high level. Students who are accustomed to answering most questions in tests correctly should not be discouraged if they get a number of questions wrong. It is very rare for even the highest scoring candidates to score full marks on all components of the Selective High Schools Test.

Selective high school entry does not depend entirely on a student's performance in the Selective High Schools Test as school assessment scores in English and mathematics are provided by the primary schools. It is important to note that selection committees and appeals panels will not accept students' performance in this past paper as evidence of academic merit for the purposes of entry into a selective high school in any future year.

NSW DEPARTMENT OF EDUCATION AND TRAINING



SELECTIVE HIGH SCHOOLS TEST

2003

TEST 2

MATHEMATICS

INSTRUCTIONS

- 1 You have 40 minutes to complete the test. It contains 40 questions.
- 2 With each question there are four possible answers **A, B, C** or **D**. For each question you are to choose the **ONE** answer you think is best. To show your answer, fill the oval for one letter (**A, B, C** or **D**) on the separate answer sheet in the section headed Mathematics.
- 3 If you decide to change an answer, rub it out completely and mark your new answer clearly.
- 4 If you want to work anything out you may write on the question booklet.
- 5 If you need the help of the supervisor during the test, raise your hand.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD

In three different places in the Mathematics test you will see a message like this.
When you see it follow the steps.

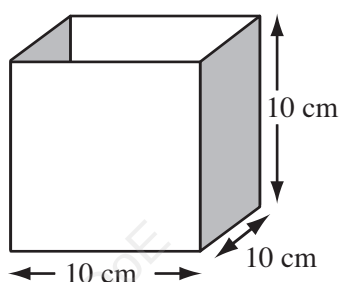
ANSWER CHECK (Example)

Look on your Answer Sheet — the last question you answered should have been Question 11 —

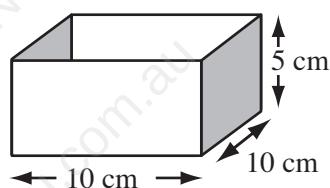
If it was, keep going.

If it wasn't, put your hand up for help.

- 1 This container holds 1 litre of liquid.



How much liquid does this container hold?



- A 50 millilitres
B 125 millilitres
C 250 millilitres
D 500 millilitres
- 2 Hazel buys petrol at 89.5¢ per litre. She fills her car with 50.7 litres.

The best estimate of how much she pays is

- A \$40
B \$45
C \$50
D \$90
- 3 In the number sentence $12 - (7 - 1) + (8 ? 2) = 10$ the ? must be

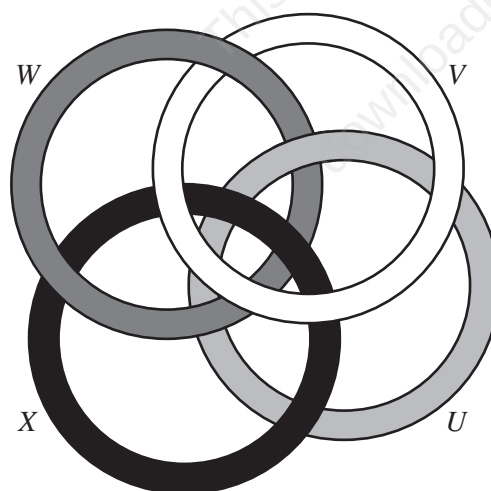
- A +
B -
C ×
D ÷

- 4 This picture shows four interlocking rings that are used for a magic trick. The rings are made to break apart into four separate rings.

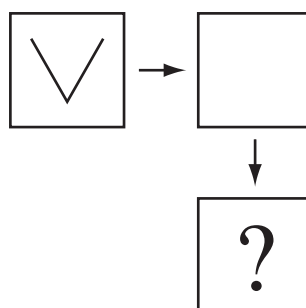
The secret is that one of the rings has a hidden catch that can be opened so the other three fall off.

Which ring must have the hidden catch?

- A Ring *U*
- B Ring *V*
- C Ring *W*
- D Ring *X*



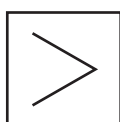
- 5 Sarah writes the letter *V* on a square piece of paper. Sarah flips the paper over its right hand edge so that the blank side faces her. Then she flips the paper over its bottom edge so that the side with the *V* faces her again.



Which of the following does Sarah now see?



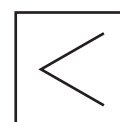
A



B



C



D

GO STRAIGHT ON →

Questions 6–7 refer to the following information

Fiona **cycled** at a steady rate to school and **walked** home at a different steady rate. Her total travel time was 25 minutes. If Fiona walked both ways, her total travel time would be 40 minutes.

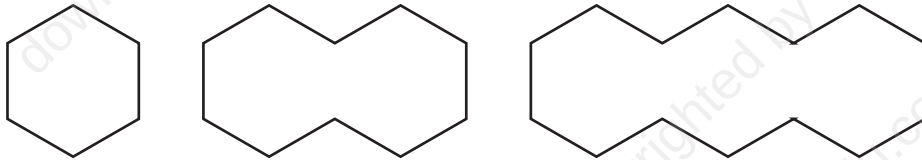
6 If Fiona cycled both ways, her total travel time would be

- A 5 minutes
- B 10 minutes
- C 15 minutes
- D 20 minutes

7 How much faster can Fiona cycle than walk?

- A 2 times
- B 3 times
- C 4 times
- D 5 times

8 Here are the first three diagrams in a pattern formed with matchsticks.



How many matchsticks are needed to make the tenth diagram?

- A 40
- B 42
- C 46
- D 50

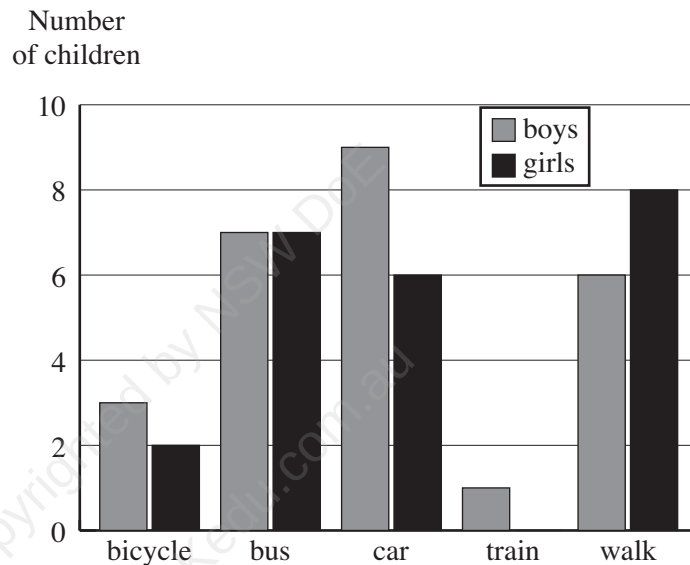
9 A cyclist travels 2 kilometres every 5 minutes.

Which of the following calculations gives the time in minutes for the cyclist to travel 12 kilometres?

- A $12 \div 10$
- B 12×0.4
- C $12 \div 2.5$
- D 12×2.5

Questions 10–12 refer to the following graph

The graph shows how the children in Year 6 travel to school.



- 10 The number of children in Year 6 is
- A 23
 - B 26
 - C 49
 - D 50
- 11 How many more Year 6 boys than Year 6 girls travel to school either by bus or by car or by train?
- A one
 - B three
 - C five
 - D four
- 12 Which one of these statements is correct?
- A More Year 6 boys than Year 6 girls travel to school either by bus or by train.
 - B More Year 6 boys than Year 6 girls cycle or walk to school.
 - C The number of Year 6 students who travel to school by car is less than the number of Year 6 students who travel to school by bus.
 - D The number of Year 6 students who travel to school by bus is less than the number of Year 6 students who walk to school.

ANSWER CHECK (Mathematics No. 1)

Look on your Answer Sheet – the last question you answered should have been Question 12.

If it was, keep going.

If it wasn't, put your hand up for help.

- 13 Bill takes a strip of thin wire 48 cm long and bends it to form a rectangle. The two ends of the wire neatly join.

If Bill's rectangle is 8 cm wide, its length is

- A 6 cm
- B 16 cm
- C 32 cm
- D 42 cm

- 14 Marie buys a tin of chocolates that weighs 440 grams. She eats half the chocolates. The half-full tin weighs 300 grams. Marie then eats the rest of the chocolates.

What does the empty tin weigh?

- A 140 grams
- B 150 grams
- C 160 grams
- D 280 grams

- 15 A millimetre is one thousandth of a metre. So a 'milliyear' would be one thousandth of a year.

The length of a 'milliyear' would be closest to

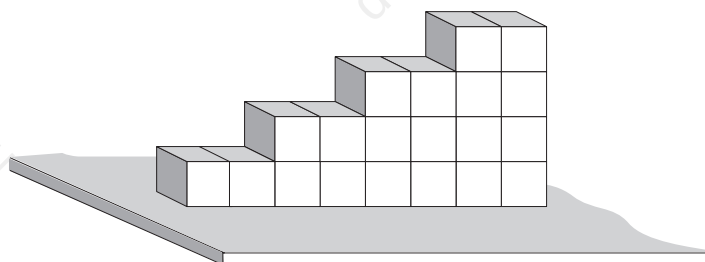
- A 10 hours
- B 10 days
- C 1 hour
- D 1 day

Questions 16–18 refer to the following information

Lisa is stacking cubic blocks to make stairs. The blocks have edges 5 cm long.

She calls these **1-2 stairs** because the pattern for making them is “go up one block then along two blocks”.

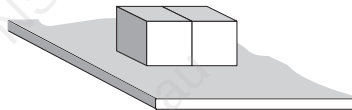
These stairs are 8 blocks long and 4 blocks high.



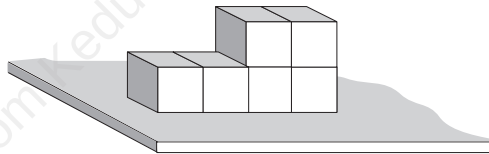
- 16 Starting with the stairs shown above, how many **extra** blocks would Lisa need to make 1-2 stairs 30 centimetres high?

A 10
B 22
C 30
D 36

- 17 Here are two blocks on a table. If you walk around the table there are a total of eight faces that can be seen.



How many faces could you see on these stairs?



- A 12
B 18
C 20
D 36
- 18 Lisa makes some new stairs. She calls them **2-1 stairs** because the pattern she uses to make them is “go up two blocks then along one block”.

Her new stairs are 50 centimetres high. How long are they?

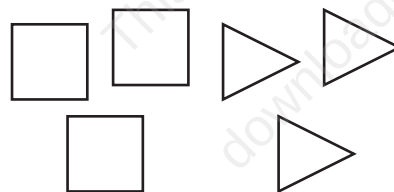
A 20 centimetres
B 25 centimetres
C 40 centimetres
D 100 centimetres

- 19 A prepacked 2 kg bag of potatoes costs \$3.90. When you buy loose potatoes, they cost \$1.75 per kilogram.

If you buy four 2 kg bags of potatoes, how much more expensive is it than if you bought 8 kg of loose potatoes?

A \$0.40
B \$1.60
C \$2.15
D \$3.60

- 20 Amy has three squares and three equilateral triangles only.



All the edges of the squares and triangles are the same length.

Amy is joining some of these six shapes together at their edges to make 3-dimensional figures.

Which one of the following figures can she make?

- A A prism with a triangular base
 - B A prism with a square base
 - C A pyramid with a square base
 - D A pyramid with a triangular base
- 21 Jay's videotape machine can rewind a videotape 20 times as fast as it takes to play the tape.

How long will it take Jay to completely rewind a videotape that takes 4 hours to play?

- A 5 minutes
 - B 12 minutes
 - C 20 minutes
 - D 80 minutes
- 22 Eva wanted to use her calculator to find 0.6×18.4 , but the decimal point button was broken. So she found instead that $6 \times 184 = 1104$.

The correct answer to 0.6×18.4 is

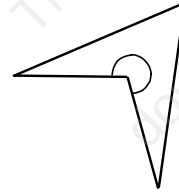
- A 0.1104
 - B 1.104
 - C 11.04
 - D 110.4
- 23 The time in New York is 15 hours behind Australian Eastern Standard time. A sporting event begins in Sydney at 2 pm on a Friday.

If it is broadcast live to New York, the starting time in New York will be

- A 5 am Saturday
- B 3 am Friday
- C 5 pm Thursday
- D 11 pm Thursday

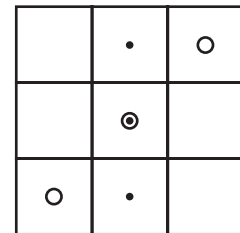
- 24 In the arrowhead shown the size of the marked angle is

A between a half turn and a three quarter turn
 B between a quarter turn and a half turn
 C less than a quarter turn
 D more than a three quarter turn



- 25 This square target has nine sections.

Quoc tries to work out how many ways he can throw three darts at the target so that they all land in a straight line. Two of the ways are shown. Note that the centre square has been hit twice. The order in which the darts hit does not matter.



In total, how many different ways can three darts land on this target in a straight line?

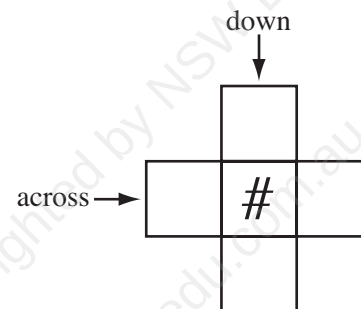
A five
 B eight
 C nine
 D more than nine

Key:

- First three throws
- Second three throws

Questions 26–27 refer to the following information

Each of the numbers 1, 2, 3, 4 and 5 is placed in this cross so that the sum of the three numbers “across” is equal to the sum of the three numbers “down”.



- 26 Which one of the following numbers **cannot** be placed in the # position?

A 1
 B 2
 C 3
 D 5

- 27 How many different possible values are there for the sum of the three numbers “across”?

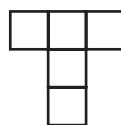
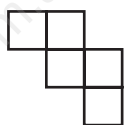
A one
 B three
 C five
 D seven

ANSWER CHECK (Mathematics No. 2)
 Look on your Answer Sheet – the last question you answered should have been Question 27.

If it was, keep going.

If it wasn't, put your hand up for help.

- 28 How many of the following nets can be folded to make an open box?



- A one
- B two
- C three
- D four

- 29 Sixteen sheets of A4 paper cover one square metre. One square metre of the paper weighs 80 grams.

What is the weight of one sheet of A4 paper?

- A 0.2 grams
- B 2 grams
- C 5 grams
- D 20 grams

Questions 30–32 refer to the following information

A rural school has 200 students, three fifths of whom are boys. All of the students live either on a farm or in town. Of the students that live on a farm, one third are girls. Three quarters of all the girls at the school live in the town.

- 30 How many girls live on a farm?

- A 20
- B 30
- C 40
- D 50

- 31 How many boys live in town?

- A 120
- B 100
- C 80
- D 60

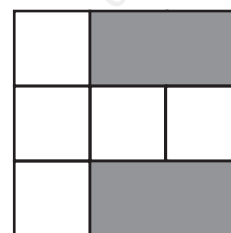
- 32 What fraction of all the students live in town?

- A four tenths
- B three fifths
- C two thirds
- D seven tenths

- 33 Eva wants to pave this path



using this pattern of paving stones. The white squares have each side 10 centimetres long. Two white squares exactly cover one grey rectangle.



How many **grey rectangles** does Eva need to pave the path?

- A 20
B 40
C 60
D 80
- 34 Nadia wanted to add 70, but subtracted 70 by mistake. Her answer was 140.

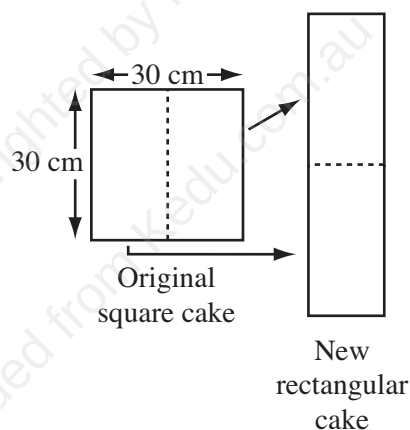
What should her answer have been?

- A 0
B 70
C 210
D 280

- 35 Chantelle cuts a square cake in half and joins the two pieces together to make a rectangular cake. The diagram shows the top view of the original cake and the new cake.

What is the difference in perimeter between the original cake and the new cake?

- A 0 cm
B 30 cm
C 40 cm
D 60 cm

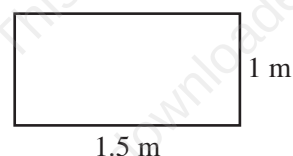


- 36 A book has 500 pages. These 500 pages are 3 centimetres thick altogether.

If all the pages have the same thickness, the thickness of a single page is

- A 0.0006 millimetres.
B 0.006 millimetres.
C 0.06 millimetres.
D 0.6 millimetres.

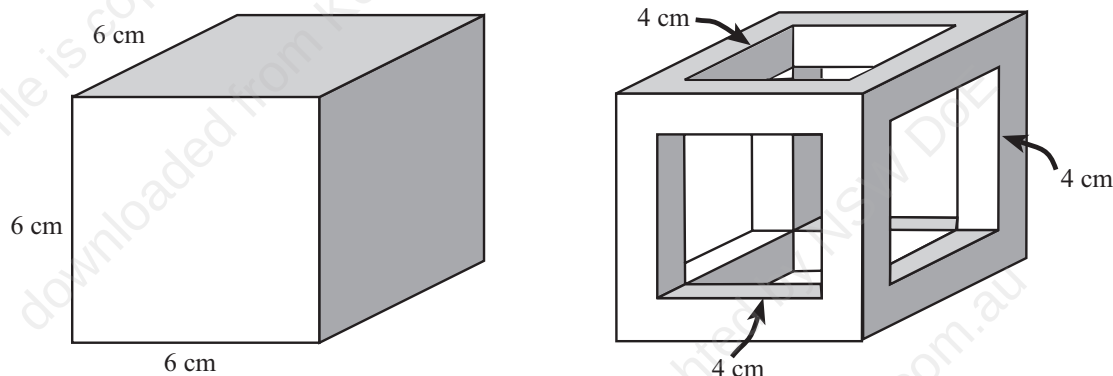
- 37 Martine has a tablecloth that fits on this tabletop. The cloth covers the table completely with 10 centimetres of material hanging down over each long edge, but no material hanging down over the short edges. Martine wants to put a lace border right around the edge of the tablecloth.



What is the length of the lace she needs?

- A 290 centimetres
 - B 520 centimetres
 - C 540 centimetres
 - D 580 centimetres
- 38 Centicubes are cubes with edge length 1 cm that can be joined together.

Jody uses some centicubes to make a solid cube of edge length 6 cm. She then removes enough centicubes to make square holes, 4 cm long on each side, through her cube in each direction.



The number of centicubes left in the second figure is

- A 56
 - B 64
 - C 104
 - D 152
- 39 Ben has some jelly beans. He can share them equally with his brother, or equally with his brother and sister, or equally with his brother, sister and mother, or equally with his brother, sister, mother and father. Whichever way of sharing he chooses, there will be no jelly beans left over.

The smallest number of jelly beans Ben could have is

- A 14
- B 24
- C 30
- D 60

- 40 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 square centimetres
- B 50 square centimetres
- C 80 square centimetres
- D 100 square centimetres

ANSWER CHECK (Mathematics No. 3)
Look on your Answer Sheet – the last
question you answered should have been
Question 40.
If it wasn't, put your hand up for help.

END OF TEST

LOOK BACK OVER YOUR WORK
IF YOU HAVE TIME.

MATHS	
No.	KEY
1	D
2	B
3	D
4	C
5	A
6	B
7	C
8	B
9	D
10	C
11	D
12	A
13	B
14	C
15	A
16	B
17	C
18	B
19	B
20	A
21	B
22	C
23	D
24	A
25	B
26	B
27	B
28	C
29	C
30	A
31	C
32	D
33	B
34	D
35	B
36	C
37	C
38	A
39	D
40	A