AIM 2006

Achievement Improvement Monitor

Year 9

STATEWIDE ASSESSMENT

MATHEMATICS TEST 1

STUDENT DETAILS

TEST INSTRUCTIONS

1. You must do your own work.
2. Do not speak to other students during the test.
3. Raise your hand if you need to speak to the teacher.
4. Follow all directions given to you by the teacher.
5. All questions must be answered using the pencil you have been given. If you need to change an answer, carefully erase it and write another answer.
6. You are not permitted to use a calculator.
7. To confirm you have the correct booklet, print your name below.

Print your name here:

YOU HAVE 45 MINUTES TO COMPLETE THIS TEST.

Victoria
The Place To Be

Year 9 Practice Questions

P1

Malcolm bought 4 CDs for $12 each.
What was the total cost?

- ⬭ $16
- ⬭ $24
- ⬭ $48
- ⬭ $60

P2

Which is the odd number in the table?

Number	2	3	4	6
	⬭	⬭	⬭	⬭

P3

$13 \times 3 =$ ☐

Year 9 Mathematics – You have 45 minutes to complete this test. Students are NOT permitted to use calculators.

1

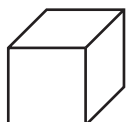$22 - 4 = 2 \times (7 + \boxed{?})$

The missing number is

2	3	4	7
⬭	⬭	⬭	⬭

2

Which of the following numbers has the **smallest** value?

0.069	0.2	0.08	0.101
⬭	⬭	⬭	⬭

3

How many edges does a cube have?

6	8	9	12
⬭	⬭	⬭	⬭

4
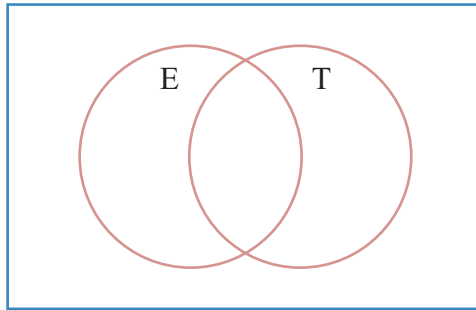
E is the set of **even numbers less than 20.**

T is the set of **multiples of 3 less than 20.**

In the Venn diagram the sets overlap because some numbers belong to both E and T.

What is the **largest** number that belongs to both E and T?

5

Anita stands on a scale and it reads 52.68 kg.

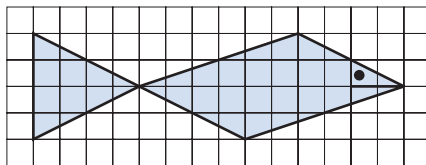She then stands on the scale holding the cat and it reads 56.35 kg.
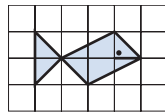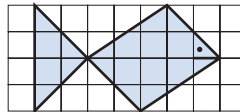
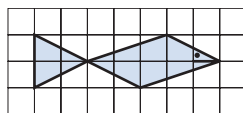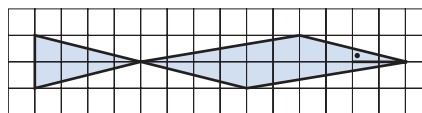What is the weight of her cat?

- ◯ 3.33 kg
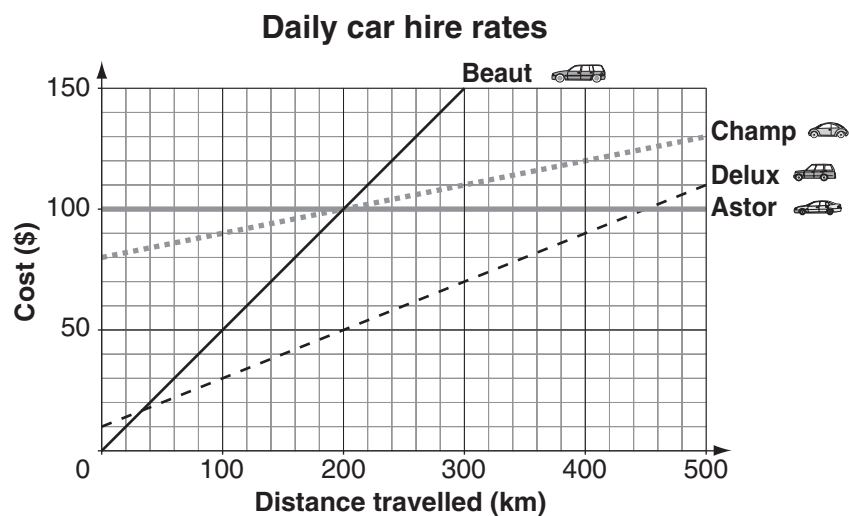- ◯ 3.67 kg
- ◯ 4.33 kg
- ◯ 4.77 kg

6

Refer to this picture of a fish.

Which picture below shows the same fish **multiplied by a scale factor of** $\frac{1}{2}$?

◯

◯

◯

◯

Questions 7 and 8 refer to the following graph.

Daily car hire rates

This graph shows the daily rates of four hire car companies.

7 Which company charges the most on a daily rate to travel 100 km?

Astor   Beaut   Champ   Delux

○   ○   ○   ○

8 Which company charges an extra $10 for every 100 km travelled per day?

Astor   Beaut   Champ   Delux

○   ○   ○   ○
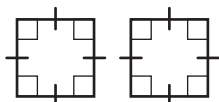
9 What is the value of $-\dfrac{1}{3} \div 6$?

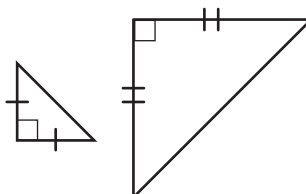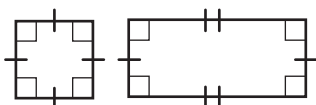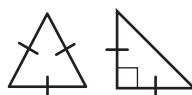−2   −18 $-\dfrac{1}{3}$ $-\dfrac{1}{18}$

○   ○   ○   ○

10 Which one of the following shows a pair of **congruent** shapes?
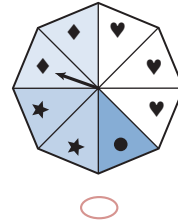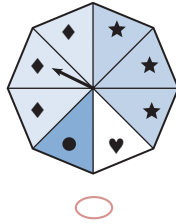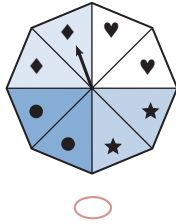

○   ○

○   ○

11

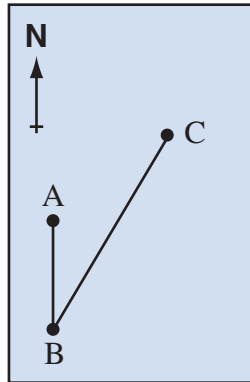Leo recorded the number of times his spinner landed on different shapes.

shape	number
◆	149
♥	223
●	74
★	154
total	600

Which spinner is he most likely to have used?

○   ○   ○   ○

12

A, B and C represent towns.

B is 50 km due south of A.

C is 100 km from B on a bearing of N30°E.

What is the bearing of B **from** C?

N30°W   S60°W   N30°E   S30°W

○   ○   ○   ○

13
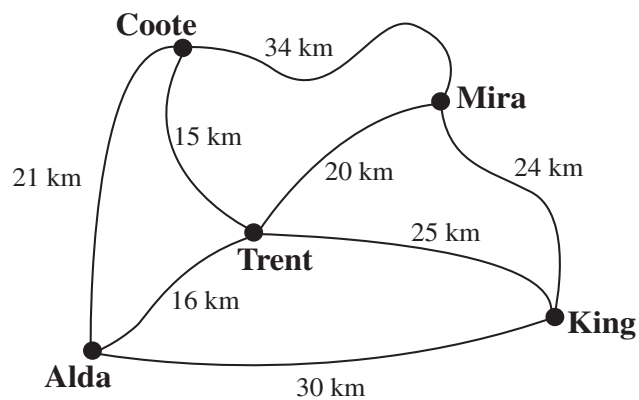
Neil delivers newspapers from Alda to four other towns.

He visits each town only once and then returns to Alda.

The **shortest** circuit is

○   Alda, King, Trent, Mira, Coote, Alda.
○   Alda, Trent, Coote, Mira, King, Alda.
○   Alda, King, Mira, Trent, Coote, Alda.
○   Alda, Trent, King, Mira, Coote, Alda.

14 The heights of 10 students are shown in centimetres.

140, 142, 145, 145, 150, 150, 160, 163, 169, 170

These heights are represented in the following stem plot.

```
14 | 025
15 | 00
16 | 039
17 | 0
```

Which height is **missing** from the stem plot?

centimetres

---

15 Solve for x

$2(x - 3) = 10$

$x =$

---

16 John has constructed a table of values for the rule $xy = 10$.

x	2	2.5	9	20
y	5	4	1	0.5

Which one of his (x, y) pairs is **not** correct?

(2, 5)   (2.5, 4)   (9, 1)   (20, 0.5)
 ○   ○   ○   ○

---

17 Refer to the following diagram.

Anna ⟶ Colin

Zac ⟵ Joe

Key
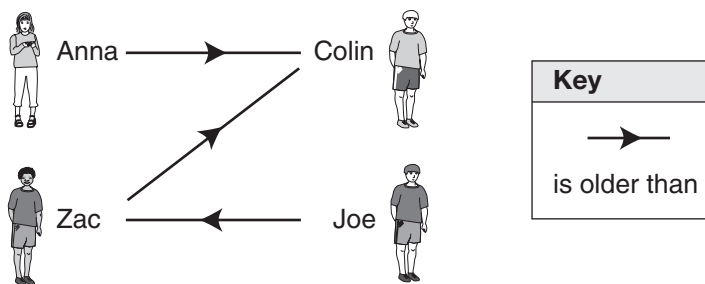
⟶ is older than

Which one of the following is **definitely** true?

○   Anna is the oldest.

○   Joe is the oldest.

○   Joe is older than Colin.

○   Anna is older than Zac.

18

A packet contains red, green, orange, black and yellow jelly beans.

The probability of choosing each colour from the packet is shown in the table below.

Colour	Red	Green	Orange	Black	Yellow
Probability	0.25	0.2	0.15	0.1	?

What is the probability of choosing a yellow jelly bean?

○ 0.05   ○ 0.2   ○ 0.3   ○ 0.57

19

An elephant weighs 5000 kg. It eats 150 kg of food each day.

What percentage of its own weight does it eat each day?

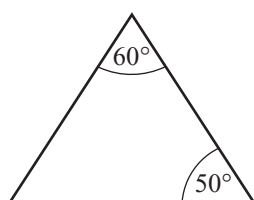○ 0.03%   ○ 3%   ○ 30%   ○ 33%
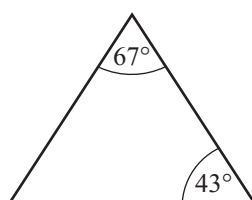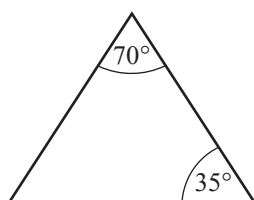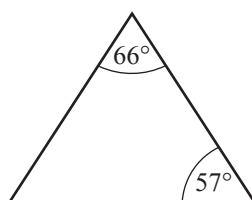

20

What is the solution of the equation $2^x = 32$?

$x =$ [   ]

21

Which sketch shows the correct angles for an **isosceles** triangle?

60°, 50°

67°, 43°

○

○

70°, 35°

66°, 57°

○

○

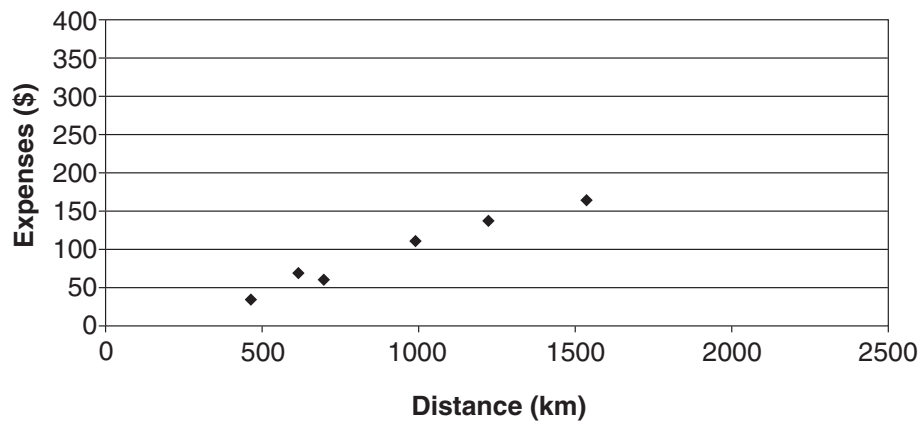**22** A family keeps a record of travel expenses on their holidays.

Travel expenses on holiday

In which range is the most likely travel expense for a holiday of 2000 km?

- ○ $150 – $190
- ○ $200 – $250
- ○ $260 – $300
- ○ $310 – $350

23
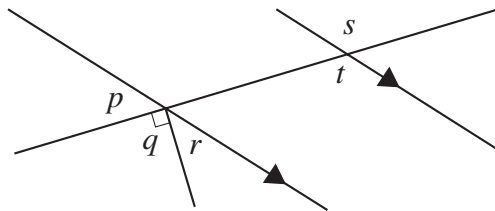
Which angle, together with angle *t*, sums to 180°?

angle *p*	angle *q*	angle *r*	angle *s*
○	○	○	○

---

24 The following sketch shows a rectangular garden.

Key

🌱 vegetable patch

ᴧᴧᴧ lawn
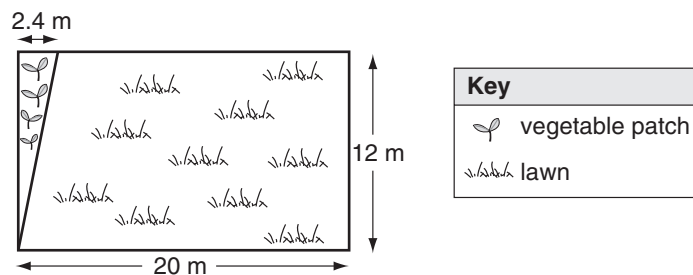
What area of the garden is covered with lawn?

211.2 m²	225.6 m²	254.4 m²	268.8 m²
○	○	○	○

**Monthly distance travelled
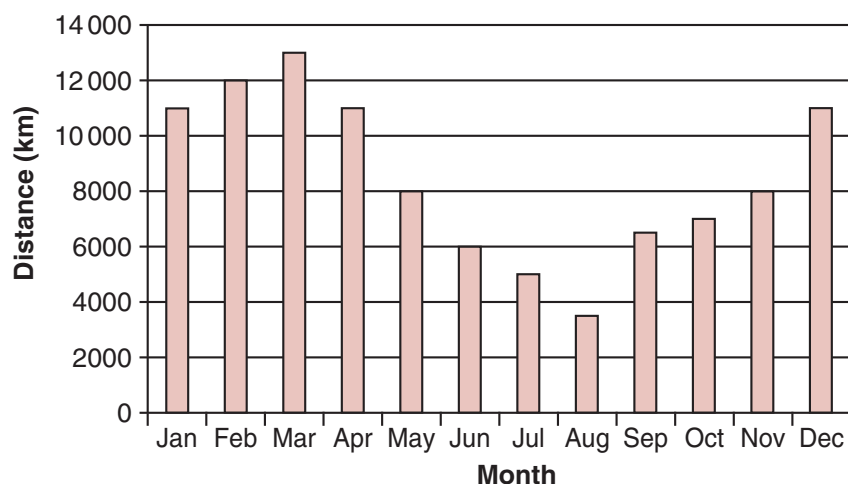by Bob's truck in 2004**

What is the **median** monthly distance travelled by Bob's truck in 2004?

5500 km   8000 km   11 000 km   13 000 km
○   ○   ○   ○

The following information is needed for questions 26, 27 and 28.

Emma completes a 20 kilometre triathlon consisting of a swim section, a cycle section and a run section.

She cycles 13.5 kilometres and runs 5.4 kilometres.

26   What is the length of the **swim** section?

[   ]   kilometres

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27   What percentage of the total triathlon distance is the **cycling** section?

Choose the **closest** answer.

2%   65%   68%   70%
○   ○   ○   ○

---

28   What fraction of the total triathlon distance is the **run** section?

$\dfrac{1}{4}$ $\dfrac{27}{100}$ $\dfrac{54}{135}$ $\dfrac{54}{1000}$
○   ○   ○   ○

29 Refer to the following table.

Casey Australian Antarctic Base – Temperatures in 2001

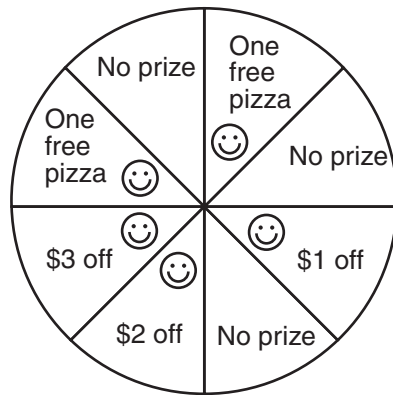|	Maximum temperature (°C)
Warmest day	5.0
Coldest day	−26.7

What was the difference in maximum temperatures between the warmest and coldest day?

[ ] °C

30

Each customer spins the Lucky Wheel at Angel's Pizza Parlour.

What is the probability that a customer wins a prize ☺ when they spin the wheel?

○ 0.125

○ 0.375

○ 0.5

○ 0.625

---

31 Students at a school were asked which fruit juice they prefer.

The number of students who preferred apple or orange juice at each year level is shown in the table.

		Apple juice	Orange juice
Junior	Year 7	90	40
	Year 8	80	50
Middle	Year 9	70	70
	Year 10	70	80
Senior	Year 11	60	90
	Year 12	50	90

What is the probability that a student randomly selected from the **Middle** School prefers apple juice?

$\dfrac{14}{84}$　　　　$\dfrac{14}{42}$　　　　$\dfrac{14}{29}$　　　　$\dfrac{15}{29}$

○　　　　　　○　　　　　　○　　　　　　○

32

This table shows the lowest and highest daily temperatures recorded at four ski towns during one year.

Towns	Chillton	Frostville	Icegrove	Shivervale
Lowest temperature (°C)	−5.3	2.2	1	−5.5
Highest temperature (°C)	8.2	12.8	13.5	6.5

In which town was the **difference** between the lowest and the highest temperatures the greatest?

Chillton   Frostville   Icegrove   Shivervale

○   ○   ○   ○

33

On average, how much butter, to the nearest half a gram, is in each biscuit?

○ 7.5 g

○ 8.5 g

○ 10.0 g

○ 12.0 g

Almond Biscuits

Makes 24 biscuits
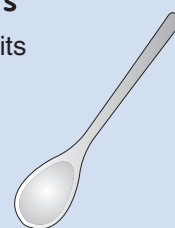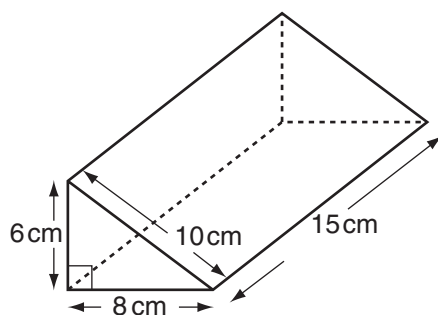*Ingredients*
200 g butter
350 g sugar
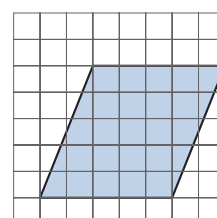500 g flour
300 g almonds

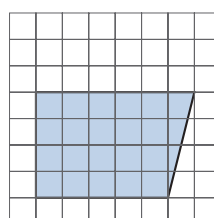
34

6 cm   10 cm   15 cm   8 cm
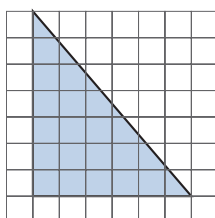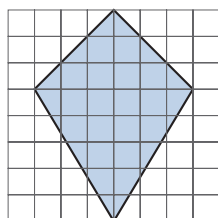
What is the volume of this triangular prism?

360 cm³   480 cm³   720 cm³   7200 cm³

○   ○   ○   ○

35

Which one of these shapes has the greatest area?

○   ○   ○   ○

36
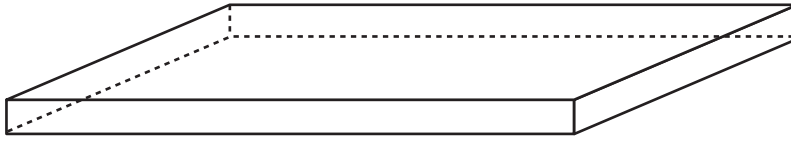
A rectangular concrete floor has a width of 6 m, a length of 10 m and a depth of 0.15 m.

What is its volume in cubic metres?

4.8   9.0   16.15   60.15

◯   ◯   ◯   ◯

37

A tin contains marbles of two different colours, red and blue.
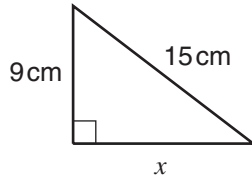The ratio of the number of **red** marbles to the number of **blue** marbles is 5:6.

What is the ratio of the number of **red** marbles to the **total** number of marbles?

[   ] : [   ]

38

9 cm   15 cm x

What is the length of the side labelled x in this triangle?

[   ] cm

39

Find a solution of the equation $2x^2 + 20 = 52$.

$x =$ [   ]

40

Which one of these expressions has the same value as $\sqrt{2}\,(\sqrt{4} + 2)$?

$4\sqrt{2}$ $8\sqrt{2}$ $2\sqrt{8} + 2$ $\sqrt{4}\,(\sqrt{2} + 2)$

◯   ◯   ◯   ◯