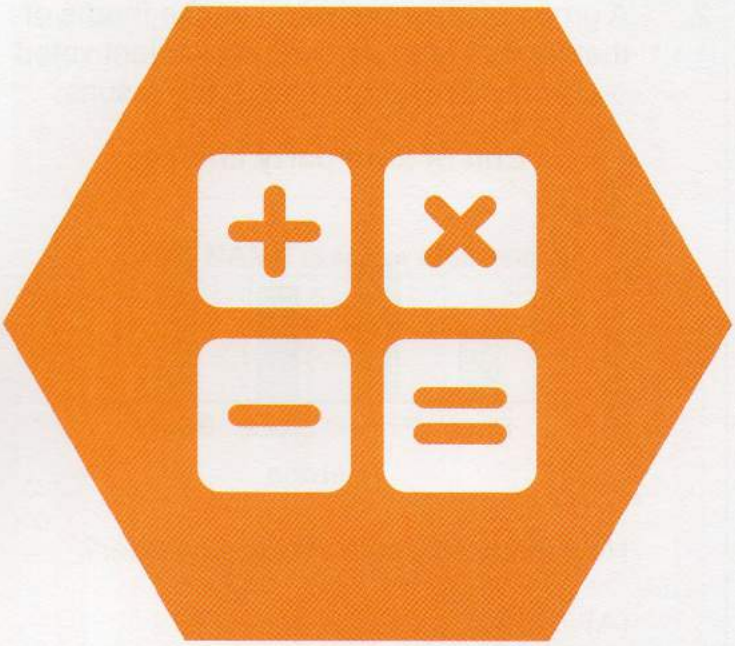
UNSW Global
THE UNIVERSITY OF NEW SOUTH WALES
SYDNEY • AUSTRALIA

PAPER D



2014 ICAS

International Competitions and Assessments for Schools

DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED.

40 QUESTIONS

TIME ALLOWED: 1 HOUR

STUDENT'S NAME:

Read the instructions on the **ANSWER SHEET** and fill in your **NAME, SCHOOL** and **OTHER INFORMATION**.
Use a 2B or B pencil.
Do **NOT** use a pen.
Rub out any mistakes completely.

You **MUST** record your answers on the **ANSWER SHEET**.

MATHEMATICS

Mark only **ONE** answer for each question.
Your score will be the number of correct answers.
Marks are **NOT** deducted for incorrect answers.

There are **35 MULTIPLE-CHOICE QUESTIONS** (1–35).
Use the information provided to choose the **BEST** answer from the four possible options.
On your **ANSWER SHEET** fill in the oval that matches your answer.

There are **5 FREE-RESPONSE QUESTIONS** (36–40).
Write your answer in the boxes provided on the **ANSWER SHEET** and fill in the ovals that match your answer.

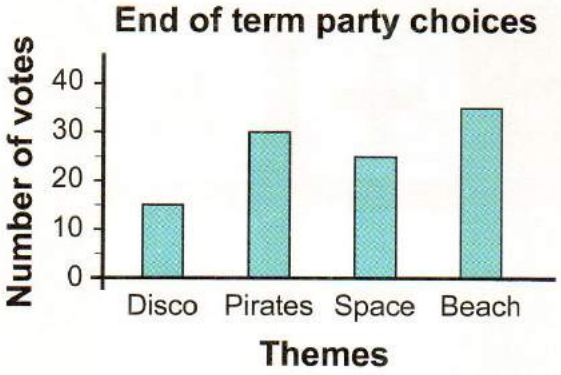
You may use a ruler and spare paper.
You are **NOT** allowed to use a calculator.

Educational Assessment Australia
eaa.unsw.edu.au

1. What is 12 multiplied by 3?

(A) 4
(B) 9
(C) 15
(D) 36

2. A group of students voted on the theme of their end of term party. Each student voted once only. The graph shows the results.



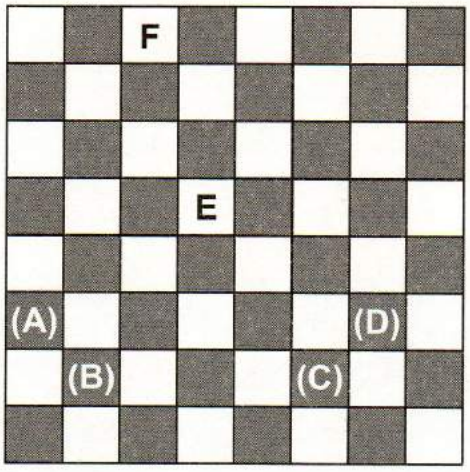
How many students voted altogether?

(A) 105
(B) 100
(C) 90
(D) 40

3. Keith moved a counter from square F to square E by going 3 squares down and 1 square right.

He then moved the counter 2 squares down and 3 squares left.

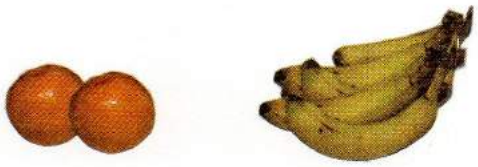
On which square did the counter land after the second move?



4. Which of these has the smallest value?

(A) 2.07 (B) 2.5
(C) 1.649 (D) 1.732

5. Sasi bought some fruit.



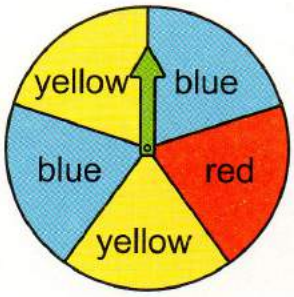
174 grams 522 grams

386 grams

What is the total mass of Sasi's fruit, in kilograms?

(A) 1.082
(B) 1.82
(C) 10.82
(D) 1082

6. Jim spins this spinner.



What is the chance that the arrow stops on red or blue?

(A) $\frac{1}{5}$ (B) $\frac{2}{5}$

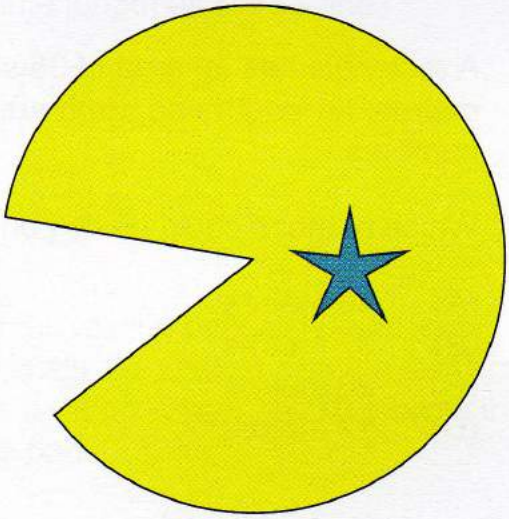
(C) $\frac{3}{5}$ (D) $\frac{4}{5}$

7. Jane is cutting paper shapes to make a birthday hat that looks like this one.

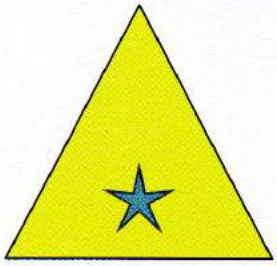
Which shape must she use?

(A)

(B)

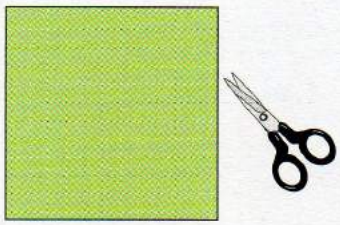


(C)



(D)

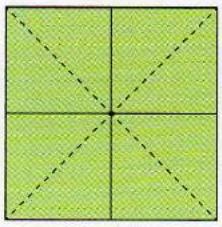
8. Tony is cutting and folding a piece of square paper to make an open box with rectangular faces.



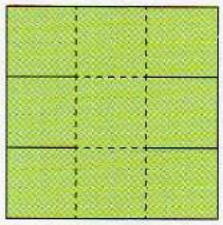
The solid lines show where to cut.

The dashed lines show where to fold.

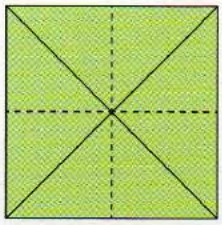
Which of these could make the box?



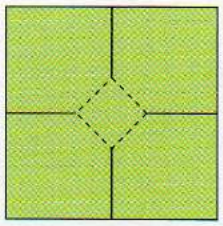
(A)



(B)



(C)



(D)

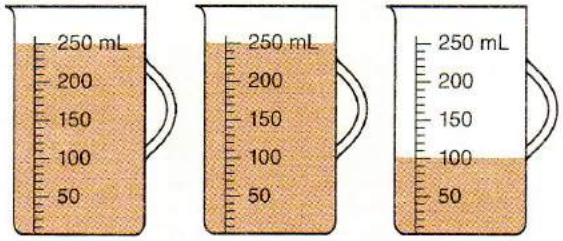
9. Alan has a box of 60 pencils. He gives one-third of the pencils to Ben. He then gives one-tenth of the remaining pencils to Cam.

How many pencils does Alan have left?

(A) 26
(B) 30
(C) 34
(D) 36

10. Kieren mixed orange juice and berry juice to make a fruit drink.

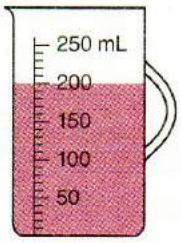
He had this amount of orange juice.



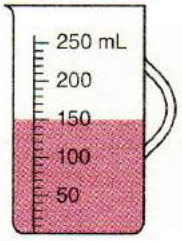
The amount of berry juice he added was one-quarter of the orange juice he had.

Which of these shows the amount of berry juice Kieren added?

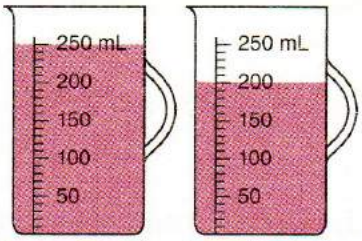
(A)



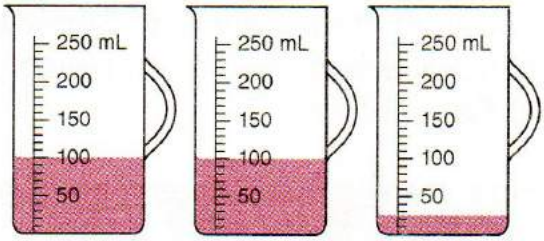
(B)



(C)



(D)



11. Anish and Natalia have some cards.

Anish would have four times as many cards as Natalia if Natalia gave him some of her cards.

If Anish gave Natalia nine of his cards they would have an equal number of cards.

How many cards does each person have?

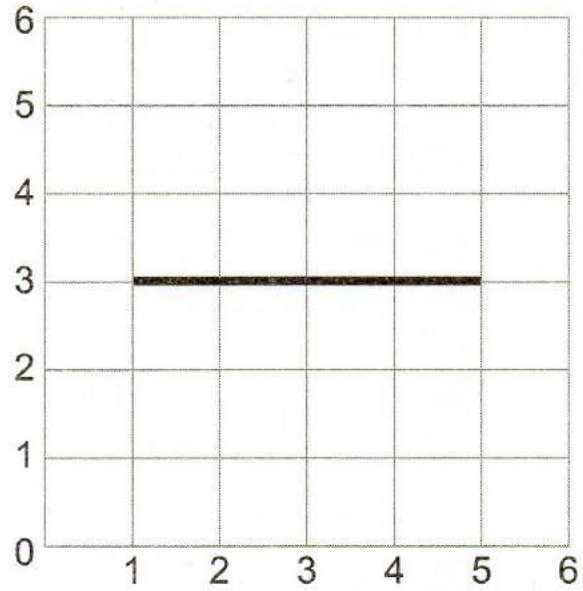
	Anish	Natalia
(A)	12	30
(B)	21	39
(C)	30	12
(D)	39	21

12. A rectangle has an area of 36 square metres. Its length and width are whole numbers.

Which of these could be its perimeter?

(A) 40 metres
(B) 37 metres
(C) 20 metres
(D) 12 metres

13. Mike drew a black line on this grid from (1, 3) to (5, 3).



Which of the following pairs of points when joined makes a line which has the same length as Mike's line?

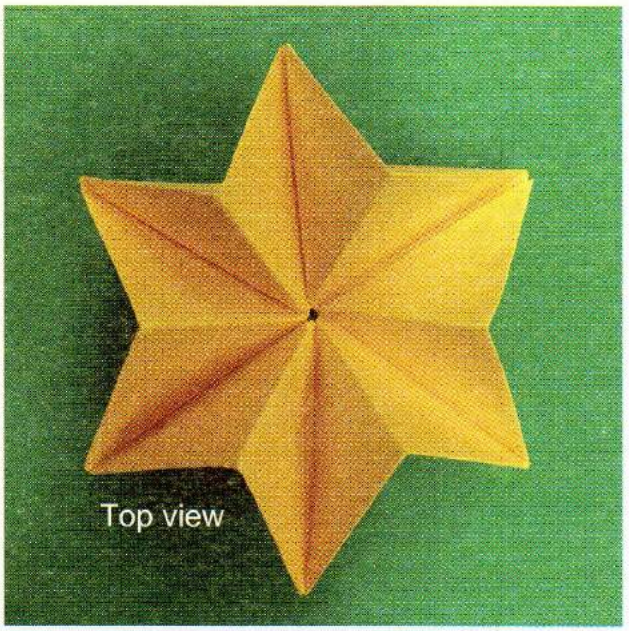
(A) (1, 2) to (4, 2)
(B) (1, 4) to (4, 1)
(C) (2, 0) to (6, 4)
(D) (3, 2) to (3, 6)

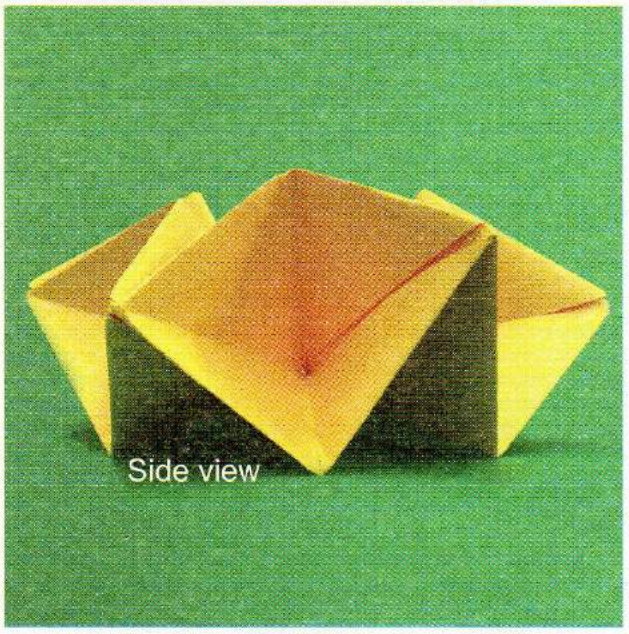
14. In a small wildlife park, one-quarter of the animals are snakes and the rest are lizards or birds. There are 70 snakes in the wildlife park.

How many lizards and birds are there?

(A) 70
(B) 140
(C) 210
(D) 280

15. This is a model of a 3D object made by folding paper.





How many faces does the 3D object have?

(A) 12
(B) 24
(C) 48
(D) 60

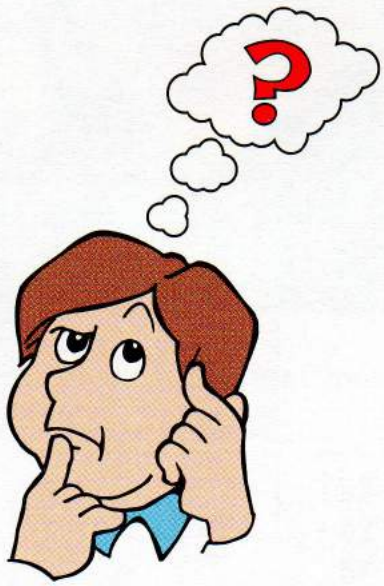
16. There was a box of 30 toy dinosaurs. The table shows what types and colours of toy dinosaurs were in this box.

	Red	Green	Pink	Blue
Diplodocus	1	1	0	1
Stegosaurus	2	4	1	1
Triceratops	3	0	0	1
Allosaurus	4	1	0	0
Velociraptor	2	4	2	2

Which type of toy dinosaur made up one-third of the contents of this box?

(A) Diplodocus
(B) Triceratops
(C) Allosaurus
(D) Velociraptor

17. Don thought of a 2-digit number.

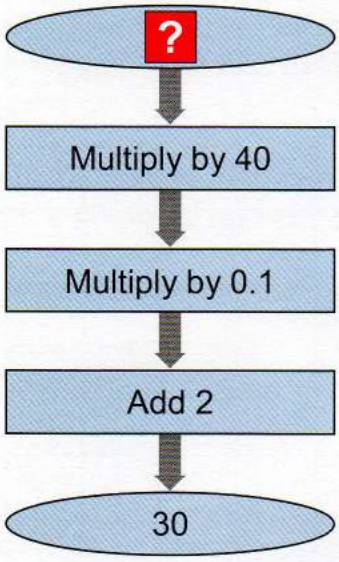


Don said, 'If I divide the number by six, the remainder is three. If I divide the number by eight, the remainder is also three.'

Which of these is the smallest possible number that Don could have thought of?

(A) 24
(B) 27
(C) 48
(D) 51

18. What number is missing from this chart?



(A) 7
(B) 30
(C) 122
(D) 128

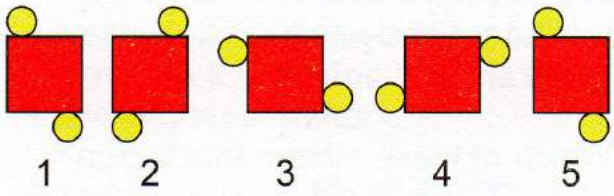
19. Whenever Yara enters a 2-digit number into her calculator, she always enters the digits in reverse order.

She is asked to add up the numbers 89, 98, 47, 77 and 85 using her calculator.

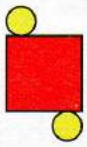
What is the difference between Yara's answer and the correct answer?

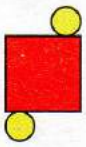
(A) 0
(B) 38
(C) 54
(D) 132

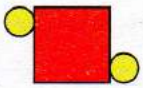
20. Here are the first five shapes in a pattern.

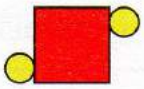


Which of these is shape 16 in the pattern?


(A)


(B)


(C)


(D)

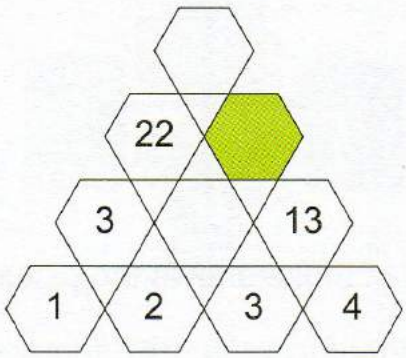
21. Anish went to a store to buy jerseys for members of his nature club.

The store had a special sale where a customer got one jersey free for every two jerseys bought. The jerseys were priced at $8.50 each.

How many jerseys did Anish get for $42.50?

(A) 5
(B) 7
(C) 8
(D) 10

22. Sam made a number pattern using multiplication and addition only.



What number must be written in the shaded hexagon to fit the pattern?

(A) 92
(B) 91
(C) 79
(D) 32

23. Jess thought of a 2-digit number. The product of the digits of the number is equal to double the sum of the digits of the number.

Which of the following could be the number Jess thought of?

(A) 11
(B) 22
(C) 36
(D) 42

24. Samantha bought $1\frac{1}{4}$ kg of apricots.

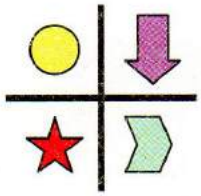
She gave her brother two-fifths of these.

What mass of apricots did Samantha have left?

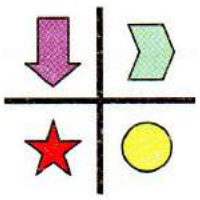
(A) $\frac{1}{2}$ kg (B) $\frac{3}{5}$ kg

(C) $\frac{3}{4}$ kg (D) $1\frac{3}{20}$ kg

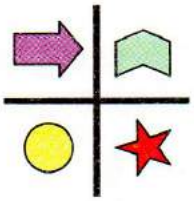
25. Bill drew this picture. Then he gave it a three-quarter turn in a clockwise direction.



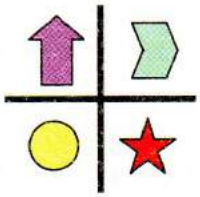
Which of these shows the picture after the turn?



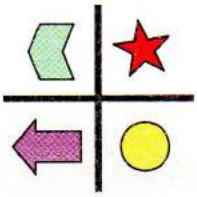
(A)



(B)



(C)



(D)

26. Aidan made a decoration. He used a 990 cm piece of string and three different types of crystals. Every 15 cm he put a crystal onto the string in the sequence shown. He did this until he reached the end of the string.

How many crystals like this  did Aidan use?

(A) 66
(B) 44
(C) 33
(D) 22

27. The train from Canberra to Sydney leaves at 11:50 am and arrives at 3:05 pm. The bus from Canberra to Sydney leaves at 11:49 am and arrives at 4:08 pm.

Which of these statements is true?

(A) The travelling time for the train is 3 h 55 min.
(B) The travelling time for the bus is 5 h 41 min.
(C) The train arrives in Sydney 63 minutes before the bus.
(D) The travelling time for the bus is four minutes longer than the travelling time for the train.

28. Five students made 114 cupcakes to sell at school.

This table shows some of the information about the number of cupcakes each student made.

Student	Number of Cupcakes
Marcia	
Jacob	?
Jen	
Rachel	?
Nathan	

KEY  = 12 cupcakes

Jacob made eight more cupcakes than Rachel.

How many cupcakes did Jacob make?

(A) 20 (B) 24
(C) 28 (D) 32

James has to visit the doctor twice. His two visits must be sixteen days apart. His second visit is the day after tomorrow.

Yesterday was Sunday.

On what day was his first visit?

(A) Saturday
(B) Friday
(C) Wednesday
(D) Monday

Mike makes advertising signs. The length is always twice the height.

This picture shows the most popular size.

6 m

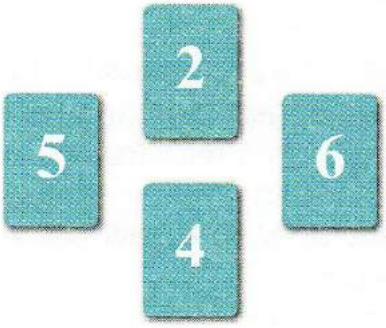
3 m

A customer wants Mike to make a sign with a perimeter of 42 metres.

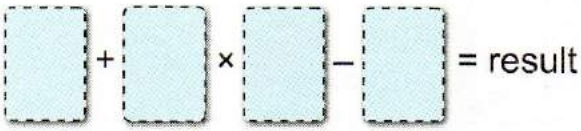
What are the dimensions of this sign?

(A) 5 metres and 16 metres
(B) 7 metres and 14 metres
(C) 6 metres and 7 metres
(D) 14 metres and 28 metres

31. Ann has four number cards.



She arranges the cards into this number sentence to give the largest possible result.

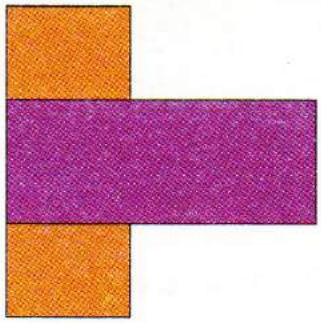


Which of these is the result?

(A) 32
(B) 42
(C) 48
(D) 52

---

32. Tala overlapped two rectangles to make a new shape as shown. Each rectangle was 4 cm by 10 cm.



What is the area of the new shape?

(A) 80 cm^2
(B) 64 cm^2
(C) 48 cm^2
(D) 40 cm^2

33. Mr Jones uses a 500 millilitre spray bottle of cleaner.

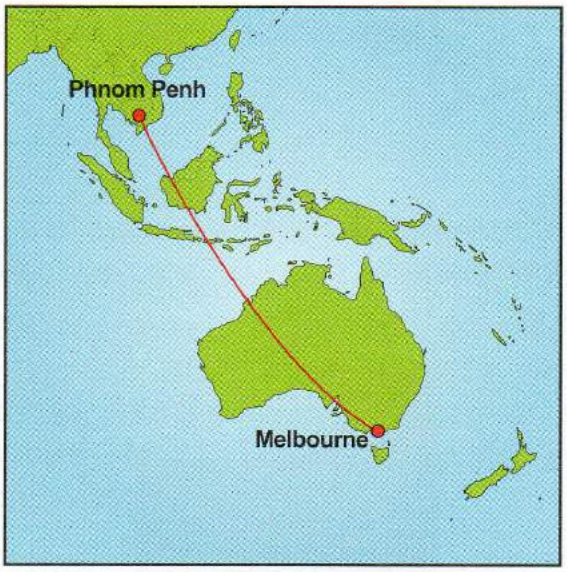
Each evening he cleans his kitchen bench using two sprays from the bottle. Each spray delivers 4 millilitres of cleaner.

Mr Jones opened a new bottle of cleaner on 12 April.

On which of these dates will this bottle of cleaner become empty?

(A) 12 June
(B) 13 June
(C) 14 August
(D) 15 August

34. Lucia flew from Melbourne to Phnom Penh.



She left Melbourne at 9:55 am.

The time in Phnom Penh is four hours behind the time in Melbourne.

She arrived in Phnom Penh at 7:28 pm.

How long was Lucia's trip?

(A) 7 hours 33 minutes
(B) 9 hours 33 minutes
(C) 11 hours 13 minutes
(D) 13 hours 33 minutes

35. Yolanda picked four numbers. The mean of her numbers was 8.

Two of the numbers were 7 and 15. The other two numbers were identical.

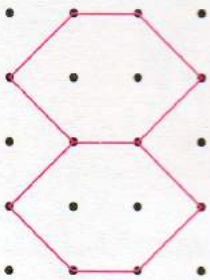
What was the value of each of the identical numbers?

(A) 5
(B) 8
(C) 10
(D) 11

QUESTIONS 36 TO 40 ARE FREE RESPONSE.

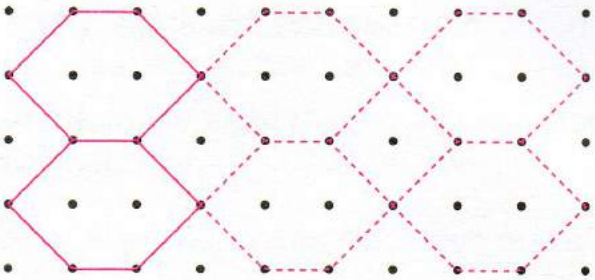
Write your answer in the boxes provided on the ANSWER SHEET and fill in the ovals that match your answer.

36. Abbas drew these hexagons on dot paper.



10 dots used

Abbas drew a second and third pair of hexagons as shown.



26 dots used

How many dots will Abbas use to draw 20 hexagons joined together like this?

37. Greg had some square coloured stickers. Each sticker had an area of five cm^2. Greg stuck them on his paper in the pattern shown. Each sticker overlapped a quarter of the area of the previous sticker.

Greg continued the pattern until it covered an area of 80 cm^2.

How many stickers did Greg use in total?

38. An ice skating rink is for hire at $80 per hour. Skates may be hired at $10 per pair. A school group hired the ice skating rink for 2 hours for an excursion. Half of the people in the group hired skates.

The group paid a total of $620 for the skating rink and skate hire.

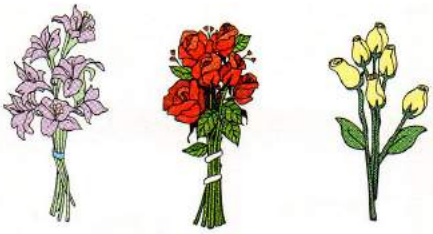
How many people were there in the group?

39. Mary had a cube. The sum of the length of the edges of her cube was 120 cm.

She cut her cube into eight equally-sized small cubes using three cuts.

What was the volume of one of the small cubes in cm^3?

40. Anna has 3 different bunches of flowers and 4 different vases.



Anna wants to put each bunch of flowers in a vase. No vase can have more than one bunch.

How many possible different ways can she do this?

Acknowledgment

The following year levels should sit THIS Paper:

Australia	Year 6
Brunei	Primary 6
Indonesia	Year 7
Malaysia	Standard 6
New Zealand	Year 7
Pacific Region	Year 7
Singapore	Primary 5
South Africa	Grade 6

UNSW Global
THE UNIVERSITY OF NEW SOUTH WALES
SYDNEY • AUSTRALIA

Educational Assessment Australia
eaa.unsw.edu.au

UNSW Global AUSTRALIA

Educational Assessment Australia

M | 2014 Mathematics Answer Keys

ICAS International Competitions and Assessments for Schools

Question Number	Paper A	Paper B	Paper C	Paper D	Paper E	Paper F	Papers G & H	Papers I & J
1	B	D	B	D	A	A	B	A
2	B	B	C	A	A	A	C	B
3	C	D	B	A	D	C	B	C
4	B	B	D	C	B	D	A	B
5	C	C	C	A	C	D	C	C
6	A	B	A	C	D	B	C	A
7	C	C	D	A	A	C	A	A
8	B	A	C	B	D	A	D	B
9	C	D	A	D	A	B	C	C
10	D	C	D	B	D	B	A	B
11	B	B	C	D	D	A	B	C
12	A	B	B	A	B	B	D	D
13	C	C	D	D	D	B	A	D
14	C	D	D	C	B	C	D	A
15	B	C	B	C	B	C	B	B
16	A	D	D	D	C	B	A	B
17	D	A	A	B	B	C	D	C
18	D	C	B	A	A	B	B	D
19	B	A	D	A	B	C	B	D
20	B	C	A	D	C	D	A	D
21	C	B	C	B	B	C	A	B
22	B	D	D	A	D	A	C	A
23	C	C	C	C	C	A	C	C
24	A	B	A	C	B	B	B	A
25	D	D	B	B	C	D	C	B
26	C	C	B	D	D	C	D	A
27	B	D	C	C	C	B	B	D
28	B	A	A	C	C	A	D	A
29	A	A	D	D	A	D	B	D
30	D	B	C	B	A	C	B	B

(Please turn over)

M | 2014 Mathematics Answer Keys

ICAS International Competitions and Assessments for Schools

Question Number	Paper A	Paper B	Paper C	Paper D	Paper E	Paper F	Papers G & H	Papers I & J
31	C	D	D	A	C	A	C	C
32	D	D	C	B	C	B	A	B
33	A	A	A	B	A	C	D	D
34	B	B	C	D	D	B	A	D
35	A	D	B	A	B	C	B	C
36	D	D	C	82|082	36|036	327	120	120
37	A	C	B	21|021	13|013	256	41|041	864
38	B	A	C	92|092	327	21|021	83|083	478
39	C	D	B	125	12|012	640	864	540
40	C	C	C	24|024	33|033	41|041	45|045	36|036

Contact Details

Telephone: +61 2 8344 1016
Email: info@eaa.unsw.edu.au
Website: www.eaa.unsw.edu.au