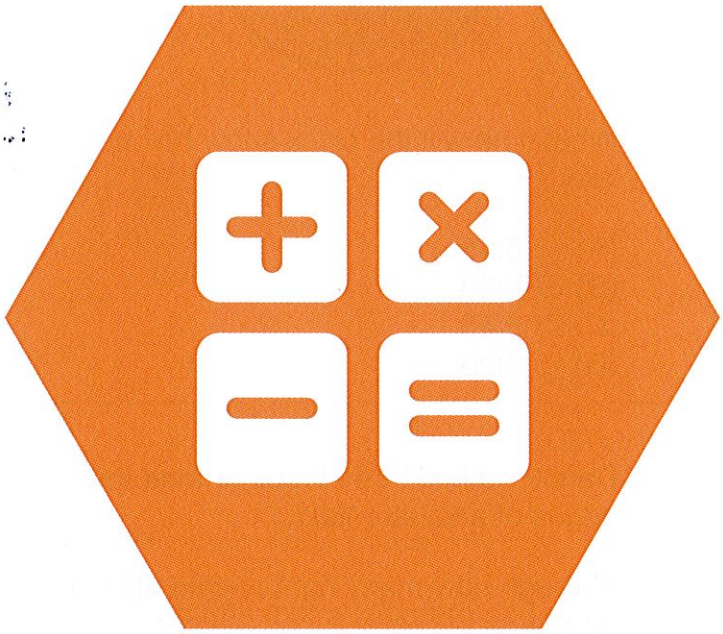
UNSW Global
THE UNIVERSITY OF NEW SOUTH WALES
SYDNEY • AUSTRALIA

PAPER C



2013 ICAS

International Competitions and Assessments for Schools

MATHEMATICS

DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED.

40 QUESTIONS

TIME ALLOWED: 45 MINUTES

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**.

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 **40 MULTIPLE-CHOICE QUESTIONS** (1–40).
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.

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

Educational Assessment Australia
eaa.unsw.edu.au

1. Here is Anna's clock.

What time will the clock show half an hour later?

(A) 6:45
(B) 6:30
(C) 5:45
(D) 4:00

2. Danny walked three times around the edges of a square field.

Through how many right angles did Danny turn?

(A) 24
(B) 12
(C) 6
(D) 3

3. Raj has 54 cards. He wants to give away all of the cards to his six friends. Each friend gets an equal number of cards.

How many cards does each friend get?

(A) 6
(B) 7
(C) 8
(D) 9

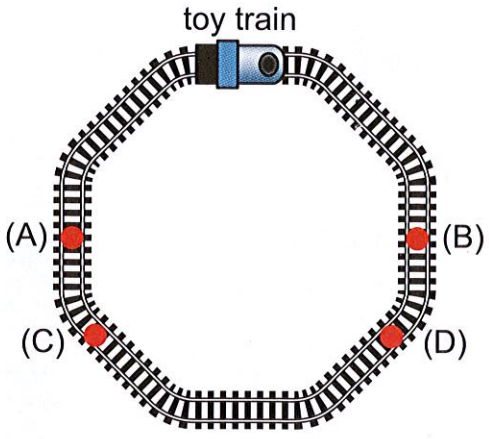
4. When Tina was asked about the length of her newborn baby, she said his length was average.

What did Tina mean by average?

(A) close to the expected length of newborn babies
(B) less than the length of most newborn babies
(C) greater than the length of most newborn babies
(D) close to the length of a newborn baby divided by his mass

5. The picture shows a toy train on a track. The train starts from the position shown and goes one-third of the way around the track in a clockwise direction. It then stops.

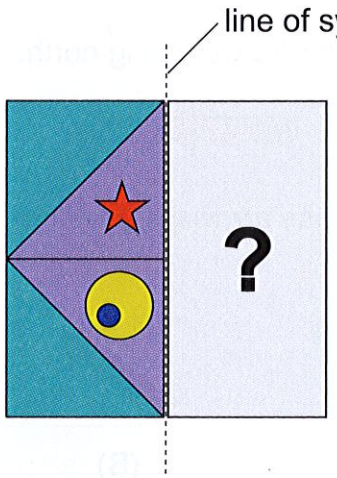
Which point is closest to where the train stops?



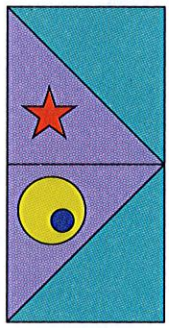
6. Which of the following could be measured in square metres?

(A) the length of a car
(B) the area of a room
(C) the mass of a dining table
(D) the volume of water in a pool

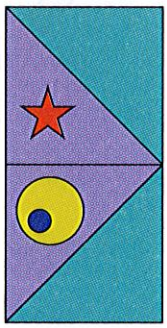
7. This is one half of a symmetrical design.



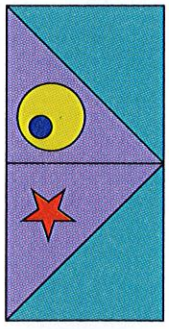
Which of these is the other half?



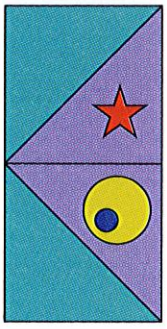
(A)



(B)



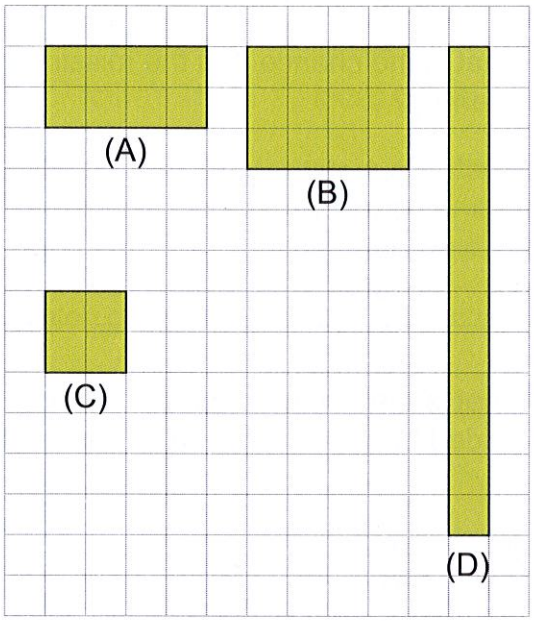
(C)



(D)

8. Anna drew some shapes on 1 cm grid paper.

Which shape has a perimeter of 12 cm?



9. Mia bought a one-kilogram bag of apples.

There were seven apples of similar size.

About how much does one apple weigh?

(A) 1400 grams
(B) 140 grams
(C) 14 grams
(D) 4 grams

10. Tony has four parrots and five canaries in a cage.

When Tony goes to feed his birds, he notices that one of them is missing.

What is the chance that the missing bird is a canary?

(A) 1 out of 2
(B) 1 out of 5
(C) 4 out of 9
(D) 5 out of 9

11. What is the smallest number that can be divided by 3, 4 and 5 with no remainder?

(A) 15
(B) 45
(C) 60
(D) 120

12. Danny has five pictures that he wants to hang horizontally in one row on his wall.

He wants to have the picture of the football in the middle. The picture of the sunflower can either be on the far right or the far left side.

This is one possible way:

How many different ways can Danny hang his pictures?

(A) 2
(B) 6
(C) 12
(D) 24

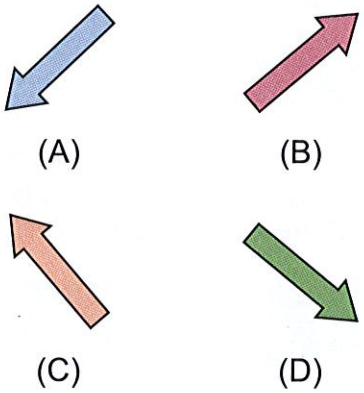
13. The diameter of a given circle is 12 centimetres.

What is the radius of that circle, in centimetres?

(A) 3
(B) 6
(C) 12
(D) 24

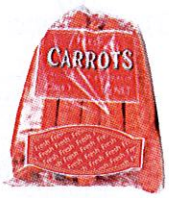
14. Mia drew an arrow pointing north.

Which of these arrows is pointing north-east?



15. Raj weighed four bags of carrots and wrote down the mass of each one.

Which bag has the greatest mass?



1.1 kg
(A)

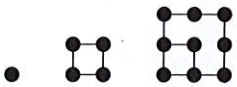
1.11 kg
(B)

1.019 kg
(C)

1.090 kg
(D)

16. Square numbers are numbers that can be represented by a square pattern of dots.

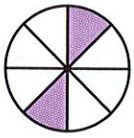
The first three square numbers 1, 4 and 9 can be represented as shown.



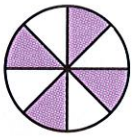
Which of the following is a square number?

(A) 10
(B) 25
(C) 27
(D) 90

17. Anna and Mia each shaded parts of two circles of the same size.



Anna's circle

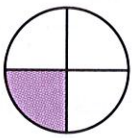


Mia's circle

Edward also shaded parts of a circle of the same size. He shaded a greater area than Anna did, but a smaller area than Mia did.

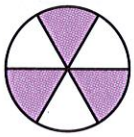
Which of these could be Edward's circle?

(A)



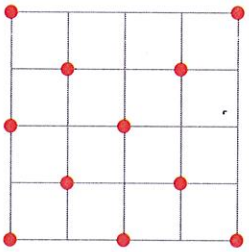
(B)

(C)



(D)

18. This square grid has 11 dots marked on it.



How many squares that have dots on ALL their corners can be drawn on this grid?

(A) 3
(B) 4
(C) 5
(D) 6

19. Sue counted the birds in a park. She noticed that there were only four types. In total, Sue recorded 140 birds.

She represented the results in this graph.

How many cockatoos did Sue record?

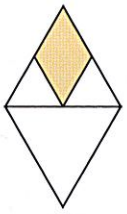
(A) 30
(B) 40
(C) 50
(D) 60

20. Adam has 24 chocolates and 72 sweets. He wants to use all of these to make identical birthday gift bags.

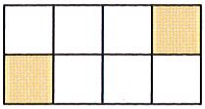
What is the largest number of gift bags he can make?

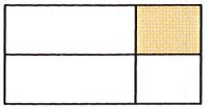
(A) 72
(B) 24
(C) 12
(D) 8

21. Which shape does NOT show one-quarter shaded?


(A)


(B)

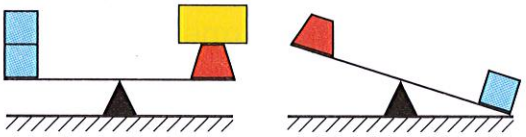

(C)


(D)

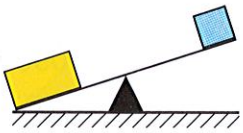
22. Which of these is greater than $\frac{1}{2}$?

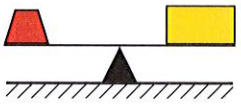
(A) $\frac{1}{3}$ (B) $\frac{2}{5}$
(C) $\frac{5}{9}$ (D) $\frac{12}{25}$

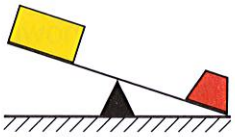
23. Mia placed these blocks on two balance beams.

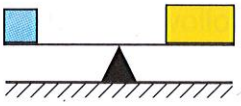


Which of these is correct?

(A) 

(B) 

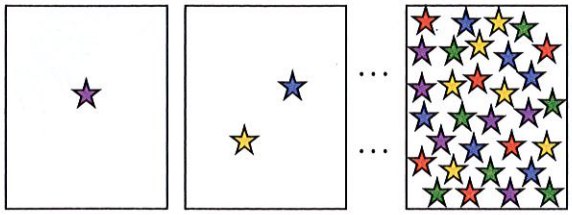
(C) 

(D) 

24. Natalia had a sticker book with 31 pages.

On the 1st page she put one sticker.
On the 2nd page she put two stickers.

She continued this pattern to the 31st page.



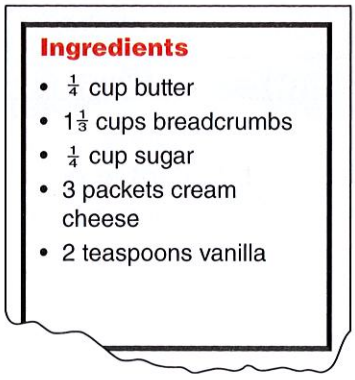
1st page 2nd page 31st page

How many stickers did Natalia put in her book altogether?

(A) 196
(B) 306
(C) 496
(D) 961

25. Sue is making a cheesecake.

Here is part of her recipe.



Sue does not have a measuring cup.
She only has a teaspoon.

She uses the following conversion.

1 tablespoon = 3 teaspoons
1 cup = 16 tablespoons

How many teaspoons of sugar does Sue need for her recipe?

(A) 16 (B) 12

(C) 4 (D) $\frac{1}{4}$

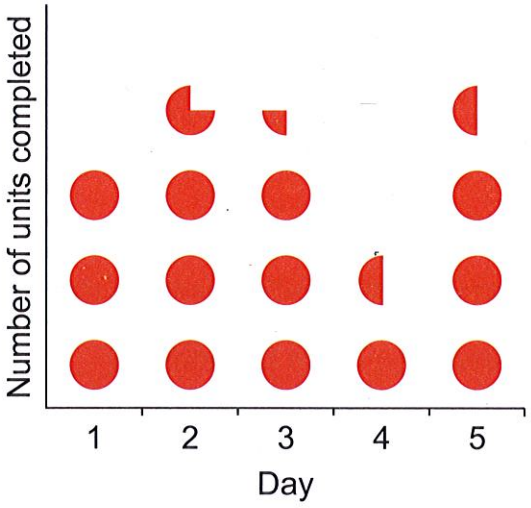
26. At the circus, 2 sticks of fairy floss cost the same as 3 lollipops.

If Sue buys one stick of fairy floss, she will have \$1.50 left over. If Sue buys one lollipop, she will have \$2 left over.

How much money does Sue have?

(A) \$2.50
(B) \$3.00
(C) \$3.50
(D) \$5.00

27. A group of students working on a school project recorded how many units of work they completed every day. They showed the data in this graph.

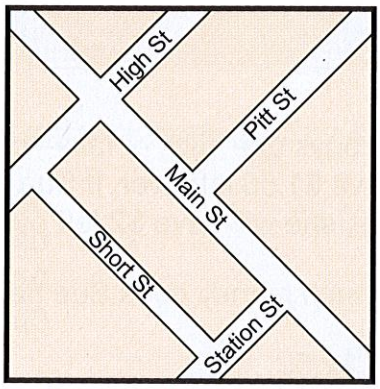


In total, the students completed 60 units of work.

How many units of work did they complete in the first three days?

(A) 10
(B) 13
(C) 36
(D) 40

28. Edward is walking in a northerly direction along Pitt St towards Main St. When he reaches Main St, he turns right. Then he turns left into the next street and left again into the next street.

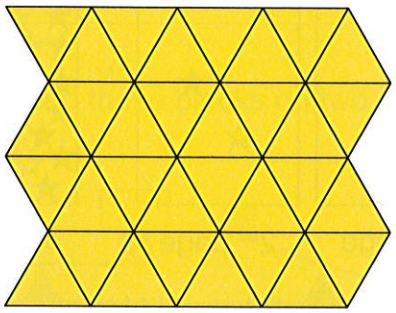


What direction will Edward then be facing?

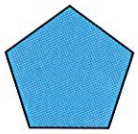
(A) North (B) South
(C) East (D) West

29. A tessellation is created when a shape is repeated over and over again, covering a flat surface without any gaps or overlaps.

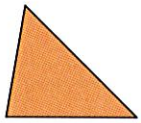
This tessellation was made with equilateral triangles.



Which of these could NOT be used to make a tessellation?

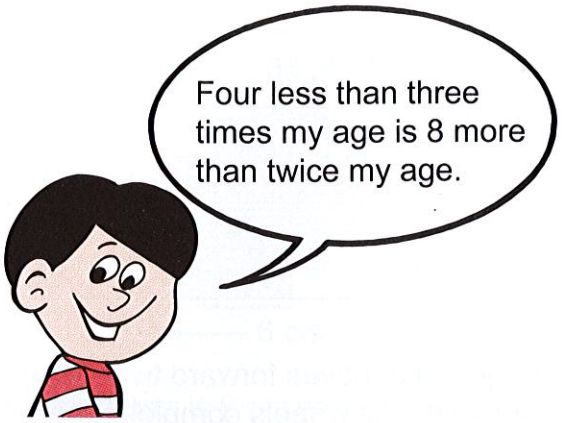

(A)


(B)


(C)


(D)

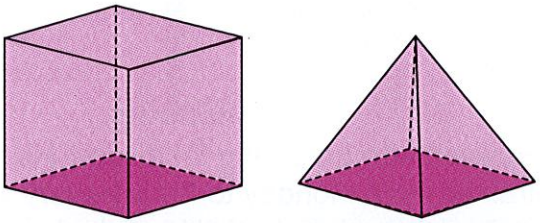
30. Edward is describing his age as shown.



What is Edward's age?

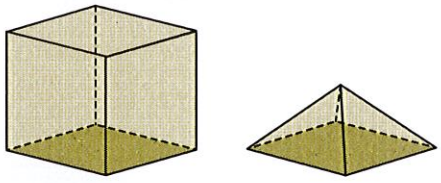
(A) 32
(B) 12
(C) 9
(D) 4

31. The cube and square pyramid below have the same height and base.



The volume of the cube is three times the volume of the pyramid.

Mia has a cube and a square pyramid.

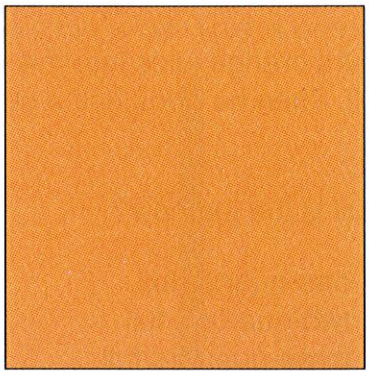


Mia's shapes have the same base, but the cube is twice as high as the pyramid.

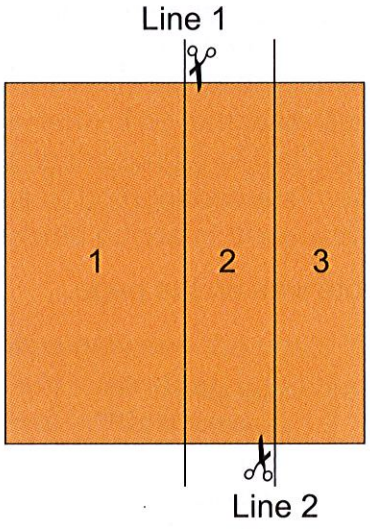
How many times greater than the volume of Mia's pyramid is the volume of Mia's cube?

(A) 8
(B) 6
(C) 4
(D) 2

32. The area of this square is 100 cm^2.



Anna cuts the square in half along Line 1. She then cuts one of the new shapes in half along Line 2. Anna numbers the rectangles 1, 2, 3 as shown.



Which of these statements is correct?

(A) Rectangle 3 has a perimeter of 25 cm.
(B) Rectangle 1 has a perimeter that is double the perimeter of Rectangle 2.
(C) Rectangle 1 has a perimeter of 20 cm.
(D) Rectangle 2 has an area of 50 cm^2.

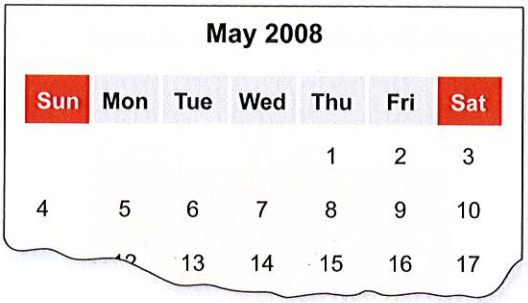
33. Danny uses a cup and a jug to mix juice. It takes 2 cups of juice to fill the jug.

He pours orange juice into the jug until it is half full. Then he adds half a cup of apple juice.

How full is the jug now?

(A) one-quarter full
(B) two-quarters full
(C) three-quarters full
(D) four-quarters full

34. Anna found a page from a 2008 calendar.



May 2008

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
		13	14	15	16	17

This note was on the page.

When did Adriana go to France?

(A) Thu 22 May 2008
(B) Thu 29 May 2008
(C) Wed 4 June 2008
(D) Thu 5 June 2008

35. What is the missing number in this number pattern?

6, 8, 12, ?, 36, 68

(A) 28
(B) 22
(C) 20
(D) 18

36. Tony's bike moves forward two metres every time its wheels complete one full turn.

Tony was riding his bike in a race. When he had finished three-quarters of the race, his wheels had made 6000 full turns.

What was the total length of the race, in metres?

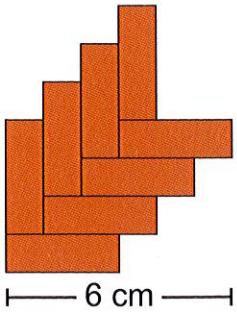
(A) 4 000
(B) 8 000
(C) 12 000
(D) 16 000

37. Edward was preparing for a race. He trained from Monday to Friday every week in April, May and June. He started on the first day of April, a Thursday, and finished on the last day of June.

In total, how many days did Edward train?

(A) 67
(B) 66
(C) 65
(D) 64

38. This shape is made up of 8 identical rectangles.

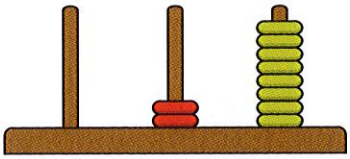


The shape is 6 cm wide.

What is the perimeter of this shape?

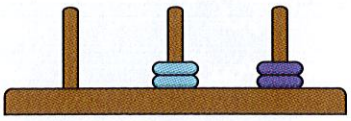
(A) 24 cm
(B) 26 cm
(C) 48 cm
(D) 64 cm

39. A regular abacus shows 28 like this:

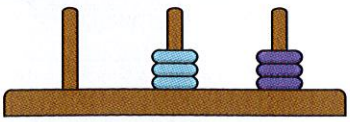


Anna has a special abacus that takes up to 6 rings on each bar. Once the number of rings reaches 7, they are replaced by one ring on the next bar to the left.

For example the number 16 is shown as:



What number is shown when Anna's abacus looks like this?



(A) 21
(B) 24
(C) 27
(D) 33

40. Raj is making a fence using five posts. The posts have to be evenly spaced. Each post is 4 cm wide. This is one post.

Raj makes a fence that is 220 cm long.

Danny is making a fence using five posts that are evenly spaced. The width of each post is 4 cm. The length of Danny's fence is double the length of Raj's fence. The lengths of both fences are measured from the outside edges of the posts at each end.

The gaps between the posts in Danny's fence are larger than the gaps between the posts in Raj's fence.

How much larger are they?

(A) 44 cm
(B) 50 cm
(C) 55 cm
(D) 60 cm

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

(Please turn over)

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31	A	B	B	D	A	C	C	A
32	D	B	A	B	D	C	B	B
33	C	C	C	C	C	B	B	D
34	C	A	D	D	C	B	D	A
35	A	B	C	C	A	C	C	C
36	A	C	D	12|012	950	6|006|06	6|006|06	10|010
37	C	D	C	128	301	98|098	4|004|04	4|004|04
38	A	A	B	90|090	135	10|010	216	351
39	D	A	B	126	12|012	90|090	127	104
40	A	B	C	350	600	16|016	18|018	65|065

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