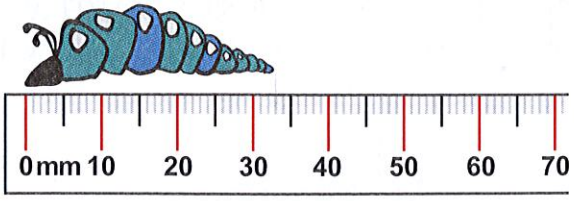
1. Anish found a caterpillar.



What is the length of this caterpillar?

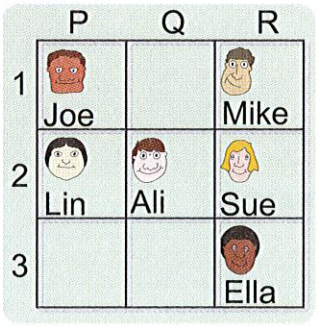
(A) 30 mm
(B) 33 mm
(C) 30 cm
(D) 33 cm

2. Yara started training at 3:15 pm. She trained for one hour and 45 minutes.

At what time did Yara finish?

(A) 4:00 pm
(B) 4:15 pm
(C) 5:00 pm
(D) 5:15 pm

3. Joe is in box P1.



Who is in box R2?

(A) Ali (B) Ella

(C) Mike (D) Sue

4. Natalia is making cupcakes. She needs 60 g of butter to make 12 cupcakes.

What is the largest number of cupcakes that Natalia can make with 120 g of butter?

(A) 10
(B) 24
(C) 60
(D) 132

5. Nick bought 6 packets of tennis balls. Each packet had 5 balls in it. Nick lost 7 tennis balls.

How can he work out how many tennis balls he has left?

(A) $6 \times 5 - 7$
(B) $7 - 6 \times 5$
(C) $7 \times 5 - 6$
(D) $6 \times 7 - 5$

6. The table shows how long four students took to run a 100 m race and a 400 m race at a sports event.

Name	Time to complete 100 m race (seconds)	Time to complete 400 m race (seconds)
Anish	13.3	74.7
Jess	16.9	69.5
Natalia	14.5	60.3
Tony	19.4	83.1

Which student took less than 15 seconds to complete the 100 m race and less than 70 seconds to complete the 400 m race?

(A) Anish
(B) Jess
(C) Natalia
(D) Tony

7. 8 806 – 2 739 = ?

(A) 6 133
(B) 6 103
(C) 6 077
(D) 6 067

8. How many minutes are there in five and a half hours?

(A) 55
(B) 300
(C) 330
(D) 550

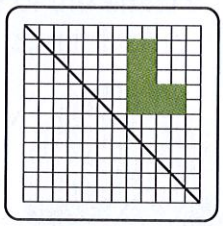
9. Tony has four parrots and five canaries in a cage.

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

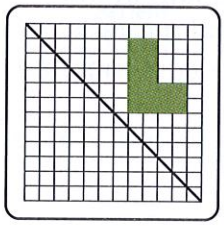
What is the chance that the missing bird is a canary?

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

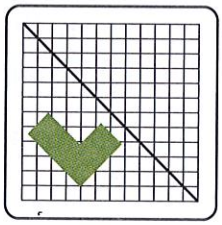
10. Yara cut out a piece of cardboard and placed it near a line on grid paper.



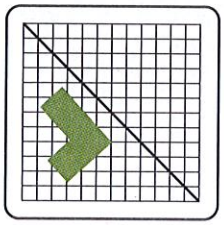
Which diagram shows Yara's piece of cardboard reflected in the line?



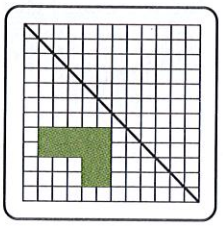
(A)



(B)

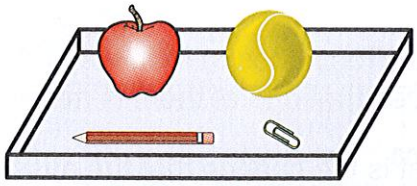


(C)



(D)

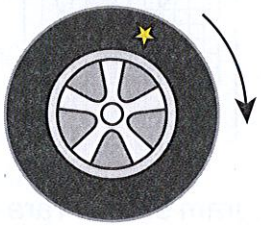
11. The picture shows four objects on a tray.



What is the approximate total mass of the objects on the tray?

(A) 250 grams
(B) 250 tonnes
(C) 250 kilograms
(D) 250 milligrams

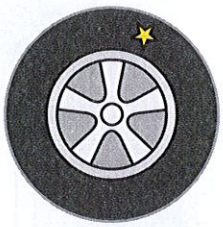
12. This picture shows a wheel with a star on it.



The wheel makes half a turn in the direction of the arrow and a quarter of a turn in the opposite direction, then stops.

Which picture shows the wheel after it has stopped?

(A)

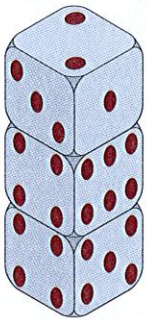


(B)

(C)

(D)

13. The picture shows a stack of three dice. Each dice has the numbers 1 to 6 shown in dots on the faces.



What is the sum of all of the numbers **NOT** shown in the picture?

(A) 63
(B) 38
(C) 25
(D) 24

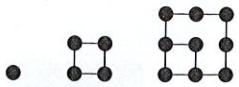
14. Ms Scott has 38 microscopes. She needs to have two sets of 28 for her science classes.

How many more microscopes does Ms Scott need?

(A) 10
(B) 18
(C) 20
(D) 22

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

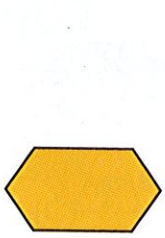
The first three square numbers 1, 4 and 9 can be represented as shown.



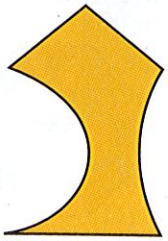
Which of the following is a square number?

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

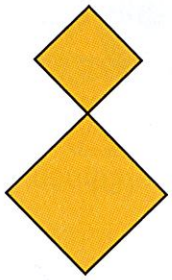
16. Natalia drew four shapes.



Shape 1



Shape 2



Shape 3

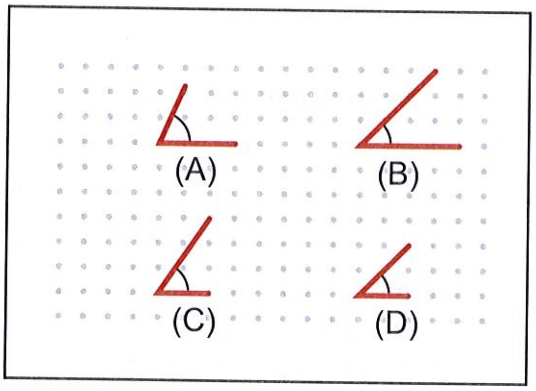
Shape 4

Which shapes have only one line of symmetry?

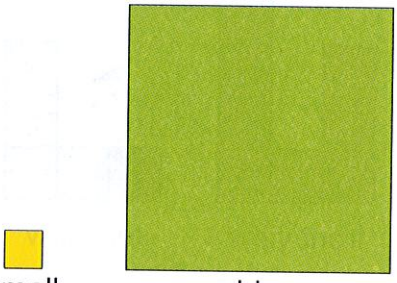
(A) Shape 3 and Shape 4
(B) Shape 2 and Shape 3
(C) Shape 1 and Shape 3
(D) Shape 1 and Shape 2

17. Four angles were drawn on square dot paper as shown below.

Which is the largest angle?



18. How many of the small squares are needed to cover the big square?



small square

big square

(A) 7
(B) 14
(C) 25
(D) 49

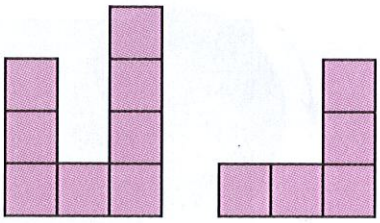
19. A local shop is offering one bouncy ball free with every five bouncy balls a customer pays for.

Jess pays the normal price for 30 bouncy balls.

How many bouncy balls will she receive in total?

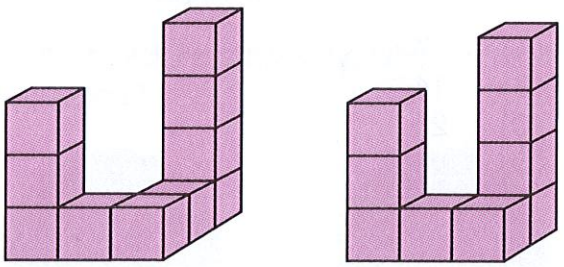
(A) 30
(B) 31
(C) 35
(D) 36

20. Natalia made a model using cubes. She drew the front view and the top view of the model.

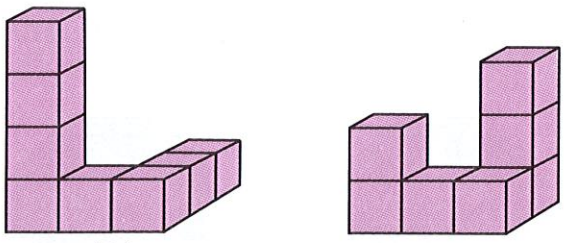


front view top view

Which of these could be Natalia's model?



(A) (B)



(C) (D)

21. Anish was trying to lose weight. At the beginning of summer he weighed 76.5 kg. At the end of summer he weighed 69.8 kg.

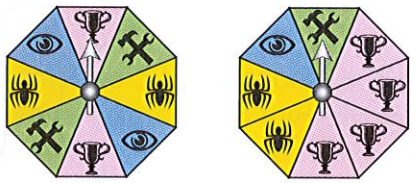
How many kilograms did Anish lose?

(A) 16.7
(B) 13.3
(C) 7.3
(D) 6.7

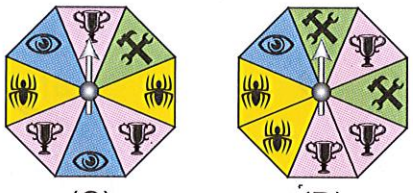
22. Mel recorded the results of 80 spins of a spinner.

29 19 21 11

Which of these spinners is most likely to be the one Mel used?



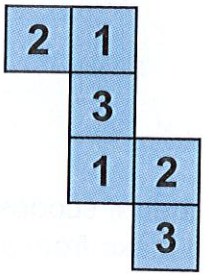
(A) (B)



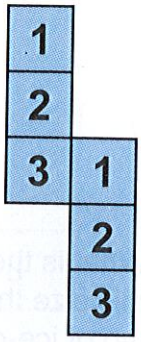
(C) (D)

23. Jess wants to make a cube so that the same number is written on opposite faces.

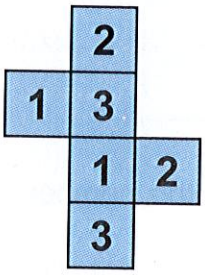
Which of these could be the net of this cube?



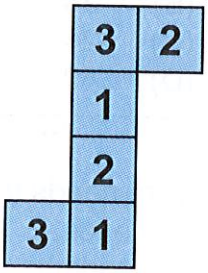
(A)



(B)



(C)

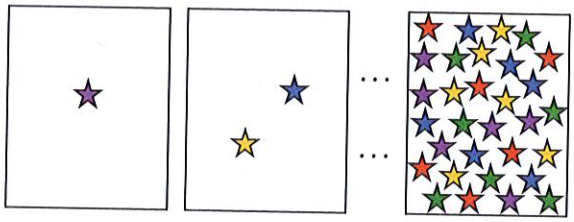


(D)

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

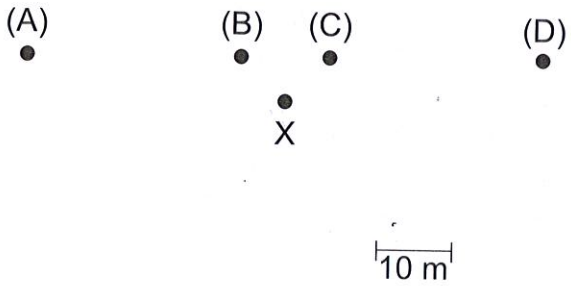
25. Jackie can make 2 pies in 3 minutes.
Lenny can make 3 pies in 2 minutes.

How many pies can they make together in an hour?

(A) 50
(B) 100
(C) 130
(D) 150

26. Yara was standing at point X, as shown below. She walked 20 metres east. Then she walked 20 metres north. From there Yara walked a further 20 metres south-east.

What was the final point that Yara reached at the end of her walk?



27. Jess arranged some shapes into a repeating pattern.

Here are the first 12 shapes in the pattern.

What will be the 46th shape in this pattern?

(A) 

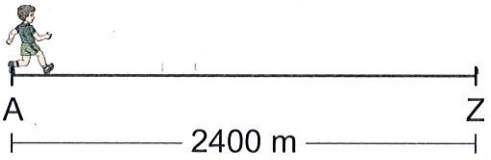
(B) 

(C) 

(D) 

28. Tony walked in a straight line from point A to point Z.

The distance from A to Z is 2400 m.



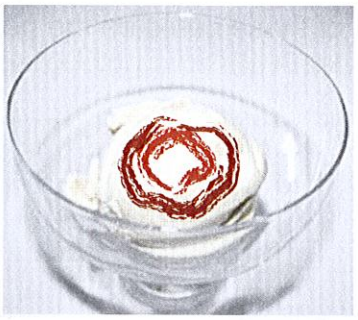
NOT TO SCALE

Tony stopped twice before reaching Z.
First he stopped after 5000 cm at point B.
Then after a further one km, he stopped at point C.

How far did Tony walk from point C to point Z, in km?

(A) 0.90
(B) 1.35
(C) 2.25
(D) 22.50

29. Jess makes a scoop of ice-cream that has a volume of 85 mL.



What is the largest number of scoops of this size that Jess could make from a 2 L tub of ice-cream?

(A) 2
(B) 23
(C) 24
(D) 42

30. Yara needs to complete this number sentence.

17 ○ (16 □ 2) = 9

Which operation signs should Yara use to make it a correct number sentence?

(A) ⊕ and ⊠

(B) ⊕ and ÷

(C) ⊖ and ⊠

(D) ⊖ and ÷

31. Students may play football, basketball or both sports at lunch time.

The table shows the activities of 24 students at lunch time last Thursday.

Activities	
football	13
basketball	12
neither sport	3

How many students played **both** football and basketball?

(A) 1
(B) 4
(C) 11
(D) 25

32. 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?

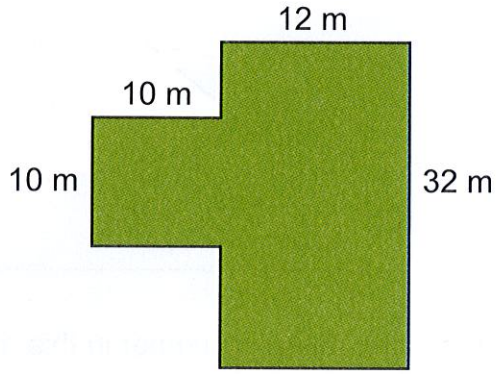
(A) 11
(B) 22
(C) 36
(D) 42

33. 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.

34. Yara wants to put a fence around this garden.



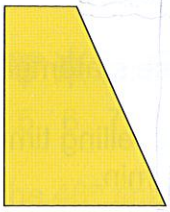
NOT TO SCALE

Which expression shows how many metres of fencing she needs?

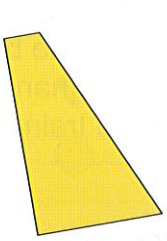
(A) $(10 \times 10) + (32 \times 12)$
(B) $(10 \times 4) + (32 + 12) \times 2$
(C) $(32 + 12) \times 2 + (10 \times 2)$
(D) $(32 + 12) \times 2 + (10 \times 3)$

35. Tony cut a square into two pieces.

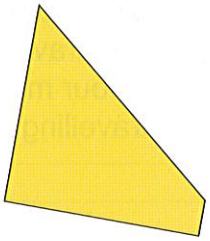
This is one of the pieces.



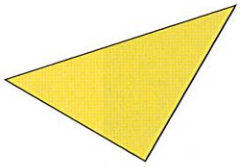
Which of these is the other piece?



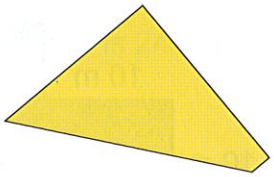
(A)



(B)



(C)



(D)

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

6, 8, 12, ?, 36, 68

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

37. 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) 4000
(B) 8000
(C) 12000
(D) 16000

38. In a school merit award system, a student with 3 bronze awards receives a silver award. A student with 3 silver awards receives a gold award. A student with 3 gold awards receives a medallion.

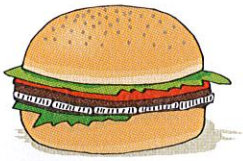
Tony has one silver award and one bronze award.

How many more bronze awards does Tony need to receive a medallion?

(A) 5
(B) 15
(C) 23
(D) 27

39. A school is having a burger day.

Each student gets a bread roll with meat. Each student can choose 0, 1, 2, 3 or 4 extras.



Extras
Lettuce
Tomato
Onion
Sauce

How many different choices of burgers are possible?

(A) 5
(B) 6
(C) 15
(D) 16

40. Anish has four different kinds of cubes.

Cube	Mass	Height
yellow	60 g	5 cm
blue	130 g	10 cm
red	250 g	20 cm
green	450 g	40 cm

Anish makes four stacks of cubes by placing one cube on top of another. Each stack is 120 cm high and made of only one colour.

What is the colour of the stack with the greatest mass?

(A) yellow
(B) blue
(C) red
(D) green

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M | 2011 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	A	B	B	A	A	C	A
2	B	D	C	D	B	D	B	D
3	D	B	D	C	B	D	A	C
4	D	A	B	C	C	D	D	A
5	C	A	A	B	C	A	A	D
6	C	B	C	D	B	A	C	A
7	A	C	D	A	A	B	A	B
8	D	D	C	D	B	D	C	B
9	D	B	D	A	D	A	D	C
10	A	B	D	A	D	B	A	C
11	C	D	A	D	D	D	D	A
12	D	C	A	D	C	A	B	A
13	C	B	B	C	B	A	A	C
14	C	C	B	D	A	A	B	B
15	A	B	B	A	A	D	D	C
16	B	D	A	A	D	B	A	B
17	D	A	A	B	A	C	B	D
18	A	D	D	A	D	C	C	D
19	B	A	D	A	C	C	B	A
20	B	C	A	C	C	B	B	C
21	A	D	D	B	D	A	A	C
22	C	D	C	B	B	C	C	C
23	D	B	A	C	C	B	B	B
24	D	D	C	C	B	A	C	D
25	A	A	C	B	D	B	B	B
26	A	B	D	B	B	B	B	C
27	C	A	A	C	A	B	C	B
28	A	D	B	C	D	C	A	B
29	A	D	B	B	A	B	A	D
30	B	C	D	D	D	C	C	B

(Please turn over)

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M | 2011 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	C	B	B	C	D	C	C
32	B	C	C	D	B	C	D	B
33	C	A	C	A	C	D	D	C
34	B	B	C	C	D	C	A	D
35	B	A	A	C	C	B	B	A
36	A	C	C	21|021	900	56|056	108	3|03|003|0 3
37	C	B	D	43|043	600	80|080	3|03|003|0 3	76|076
38	C	A	C	25|025	39|039	28|028	83|083	439
39	D	C	D	40|040	75|075	114	9|09|009|0 9	947
40	B	D	B	8|08|008|0 8	131	7|07|007|0 7	901	784

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