2004 AUSTRALASIAN SCHOOLS

YEAR 7

MATHEMATICS ASSESSMENT

AUSTRALIA

40 QUESTIONS
TIME ALLOWED: 1 HOUR

STUDENT'S NAME:

DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED.

Read the instructions on the **ANSWER SHEET** and fill in your **NAME, SCHOOL YEAR, GENDER** and the **LANGUAGE YOU FIRST SPOKE.**

QUESTIONS 1–35: MULTIPLE CHOICE
Use the information provided to choose the **BEST** answer from the four possible options.
On your **ANSWER SHEET** blacken the oval that matches the answer you choose.
Mark only **ONE** answer for each question.

QUESTIONS F1–F5: FREE RESPONSE
On your **ANSWER SHEET** write your answer in the boxes provided.

Your score will be the number of correct answers.
Marks are **NOT** deducted for incorrect answers.

Use a 2B or B pencil. Do **NOT** use a biro or pen.
Rub out any mistakes completely.
You may use a ruler and spare paper.
Calculators are **NOT** permitted.

THE UNIVERSITY OF NEW SOUTH WALES

EDUCATIONAL TESTING CENTRE

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1. Here is a pattern.

Which four symbols come next in the pattern?

(A)

(B)

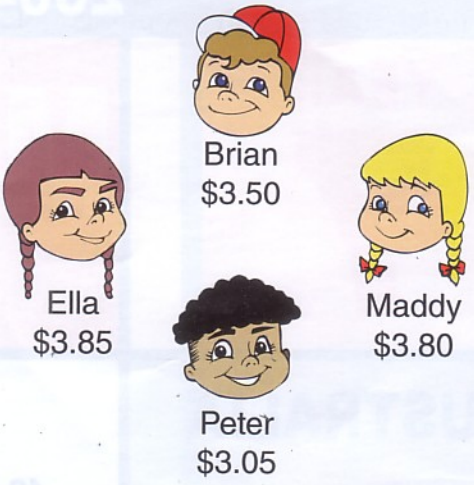
(C)

(D)

2.

What is the time shown on the clock?

(A) nine o'clock
(B) quarter to eleven
(C) quarter to twelve
(D) twelve forty-five

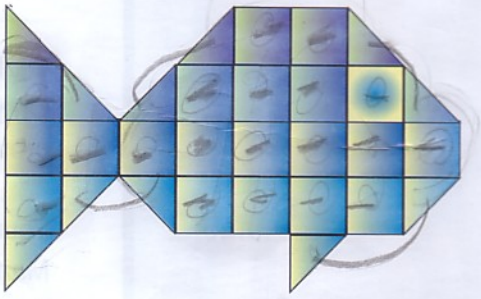
3. 

Which person has the smallest amount of money?

(A) Brian
(B) Ella
(C) Maddy
(D) Peter

4. Tara has square and triangular tiles.
Each square tile covers an area of 1 cm^2.
Each triangular tile covers an area of 0.5 cm^2.

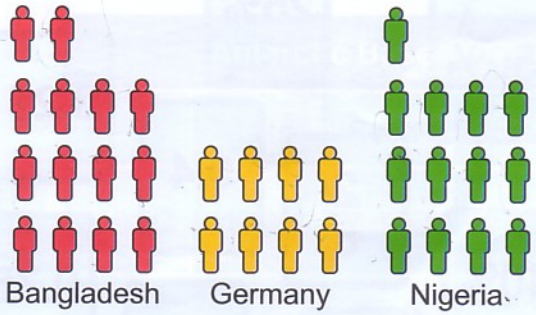
Tara makes this picture of a fish with the tiles.



What is the area, in cm^2, of Tara's fish?

(A) 22.5
(B) 25.5
(C) 26
(D) 31

5. The chart shows the population, to the nearest 10 million people, of three countries.



According to the graph, what is the population of Bangladesh?

(A) 14 million
(B) 80 million
(C) 130 million
(D) 140 million

6. How many prime numbers are there between 20 and 30?

(A) 2
(B) 3
(C) 4
(D) 5

7. Shani rounded a number correct to two decimal places and wrote down 92.57.

Which of these numbers rounds to give 92.57?

(A) 92.5777
(B) 92.5759
(C) 92.5656
(D) 92.5628

8. Boris has the coil of wire shown.

He looks through the coil in the direction shown by the arrow.

Which diagram shows what the coil looks like from this direction?

(A)

(B)

(C)

(D)

9. Jacob cuts this square into two pieces.

This is one of the pieces of the square.

Which of these is the other piece?

(A)

(B)

(C)

(D)

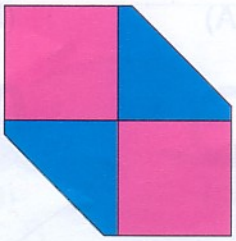
10. Felipe wants to evaluate this expression.

$$12 + 4 \times (10 - 3)^2$$

Which part of the expression should he calculate first?

(A) 3^2
(B) 4×10
(C) $12 + 4$
(D) $10 - 3$

11. Brent has this symmetrical logo.



Which of these figures has the same number of axes of symmetry as Brent's logo?

(A)

(B)

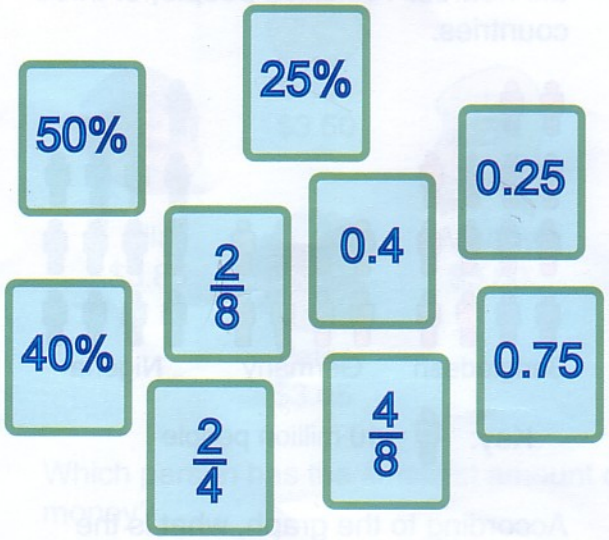
(C)

(D)

12. $0^2 + 1^2 + 2^2 + 3^2 + 4^2 =$?

(A) 20
(B) 22
(C) 30
(D) 31

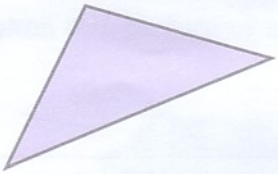
13. Alice has these maths cards.



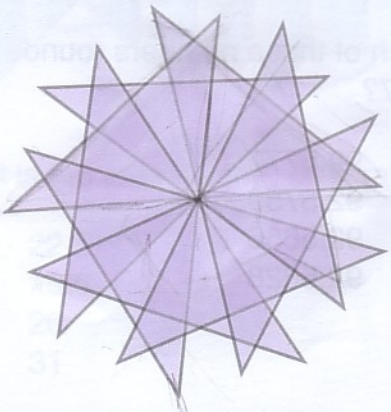
How many cards show a value equal to $\frac{1}{4}$?

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

14. Miriam drew this triangle on her computer screen.



She combined a number of copies of the triangle to produce this design.



How many of Miriam's triangles were used to make the design?

(A) 6
(B) 9
(C) 18
(D) 27

15. The table shows the temperatures at four Antarctic bases at 5 am and 6 am on the same day.

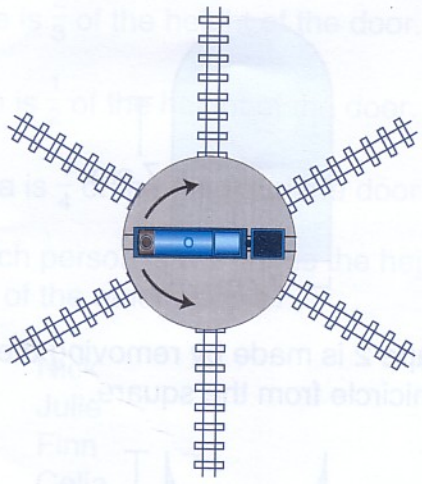
	Antarctic Base			
	Davis	Maitri	Scott	Vostok
5 am	–19 °C	–17 °C	–18 °C	–21 °C
6 am	–17 °C	–13 °C	–14 °C	–15 °C

Which base had the greatest change in temperature from 5 am to 6 am?

(A) Davis
(B) Maitri
(C) Scott
(D) Vostok

16. Shane has a model railway.

The diagram shows an engine on a turntable with 6 different tracks.



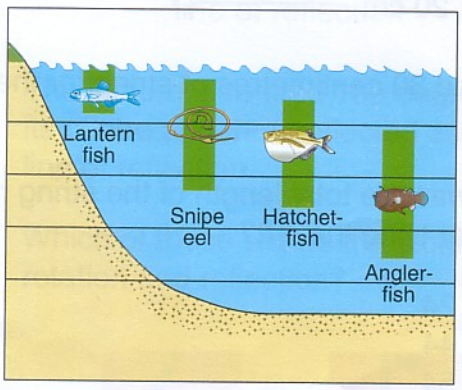
Shane needs to rotate the turntable so that the engine can leave on one of the tracks.

What is the smallest number of degrees Shane could rotate the turntable so that the engine can leave?

(A) 60
(B) 45
(C) 30
(D) 15

17. This diagram shows information about different types of fish found in a particular ocean area.

The green bars on the diagram show the ocean depth at which each type of fish can be found.



At which ocean depth are three of these different types of fish likely to be found?

(A) 1 000 m
(B) 2 000 m
(C) 3 000 m
(D) 4 000 m

18. Lisa went for a walk along the beach.

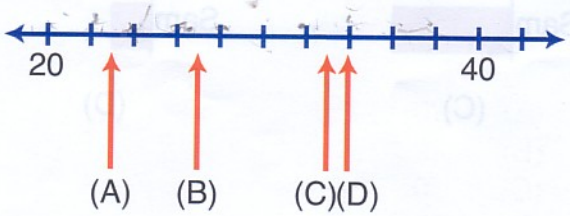
She walked 1.5 kilometres with her shoes on.

Then she walked for another 500 metres with her shoes off.

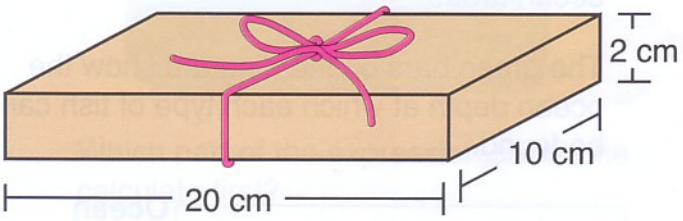
What percentage of the whole walk did Lisa walk with her shoes **off**?

(A) 25%
(B) 33%
(C) 50%
(D) 75%

19. Which arrow is closest to 3^3 on the number line shown?



20. Merlin tied a birthday gift with coloured string, as shown.



He used 30 centimetres of string for the bow.

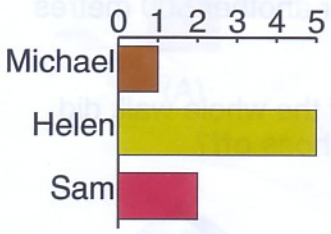
What was the total length of the string he used for tying the gift?

(A) 24
(B) 44
(C) 54
(D) 72

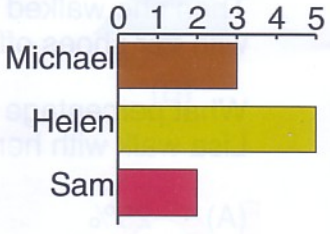
21. Michael, Helen and Sam were all practising shooting goals.

Helen scored more goals than Michael and Sam together. Michael scored more goals than Sam.

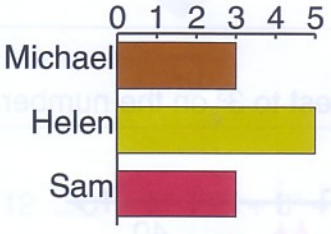
Which of these could be a correct bar chart showing the number of goals they scored?



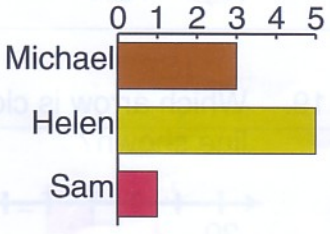
(A)



(B)



(C)



(D)

22. In magic squares the total of the numbers in each column, each row and each diagonal is the same.

Here is an incomplete magic square.

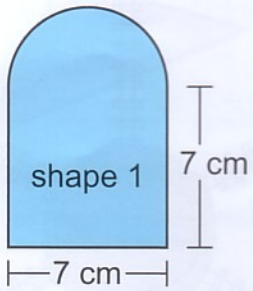
12	17	
19		?
14		18

What number goes in the red shaded box?

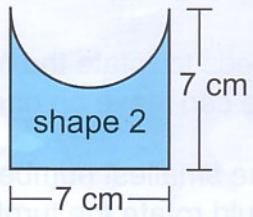
(A) 11
(B) 13
(C) 15
(D) 16

23. Shape 1 is made by joining a square and a semicircle.

The area of shape 1 is about 70 cm^2.



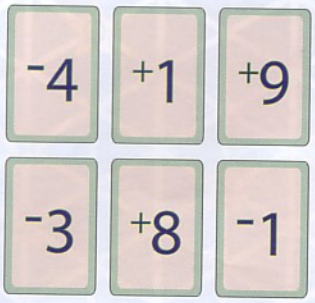
Shape 2 is made by removing the semicircle from the square.



What is the approximate area of shape 2?

(A) 20 cm^2
(B) 30 cm^2
(C) 50 cm^2
(D) 70 cm^2

24. The sum of the numbers on these six cards is 10.



One card is removed.

What is the largest possible sum of the five remaining cards?

(A) 9
(B) 11
(C) 13
(D) 14

25. Four people in a family compare their heights with the height of a door.

Nick is $\frac{3}{4}$ of the height of the door.

Julie is $\frac{2}{3}$ of the height of the door.

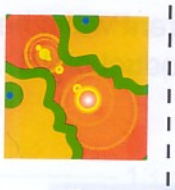
Finn is $\frac{1}{2}$ of the height of the door.

Celia is $\frac{1}{4}$ of the height of the door.

Which person is two-thirds the height of one of the other people?

(A) Nick
(B) Julie
(C) Finn
(D) Celia

26. The diagram shows a picture and a line of reflection.

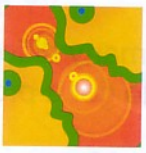


line of reflection

The picture is rotated 180 degrees about its centre and then reflected across the line of reflection.

Which of these shows the picture after the rotation and reflection?

(A)



(B)

(C)

(D)

27. A farmer planted 2700 trees.

After the first year, a drought killed one-third of the trees. During the second year 10% of the remaining trees died.

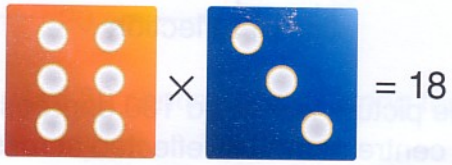
How many trees were alive by the end of the second year?

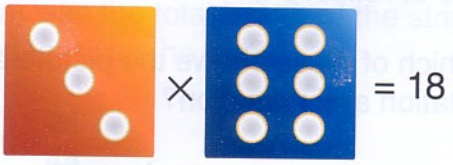
(A) 1080
(B) 1200
(C) 1620
(D) 1800

28. Carlo rolls two dice and finds the product of the two numbers.

There are two different ways he can roll the dice to get a product of 18.

For example:





How many different ways can he roll the dice to get a product **less** than 10?

(A) 10
(B) 17
(C) 19
(D) 21

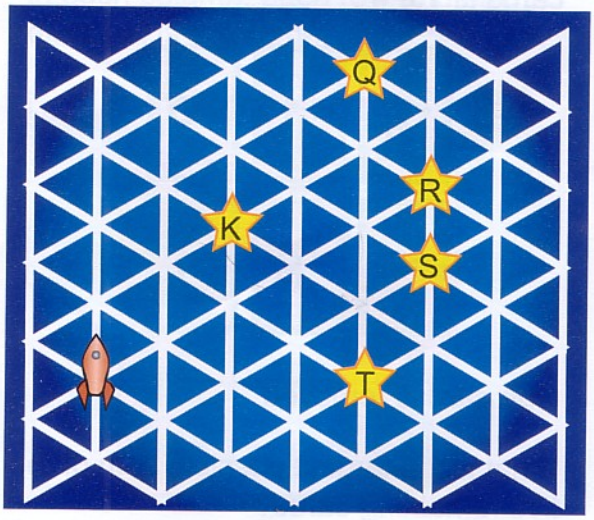
29. Trish had some 20-cent coins and some 10-cent coins.

These coins added up to $2.70. She had 3 more 10-cent coins than 20-cent coins.

How many 10-cent coins did she have?

(A) 8
(B) 9
(C) 10
(D) 11

30. Sally is playing a game on this board.



In the game the space ship visits stars by moving along the white lines.

Sally moves the space ship to K using these instructions.

- Turn clockwise 60°
- Move forward 2 units
- Turn anticlockwise 60°
- Move forward 1 unit

Sally then moves the space ship **from** K using these instructions.

- Turn anticlockwise 240°
- Move forward 2 units
- Turn clockwise 300°
- Move forward 1 unit

At which star does the space ship finish?

(A) Q
(B) R
(C) S
(D) T

31. Sasha is making solids using plastic triangles like these.

She makes 5 solids.

She puts them together to form the tetrahedron shown.

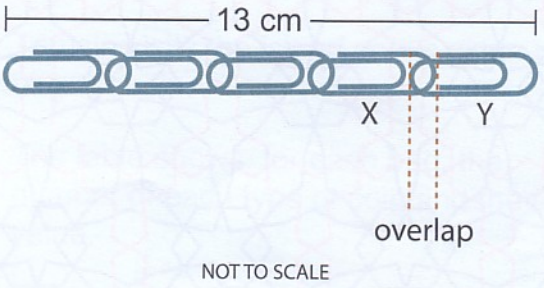
The four yellow corner solids are also tetrahedrons.

How many faces does the red inner solid have?

(A) 3
(B) 4
(C) 7
(D) 8

32. Priya has five identical paper clips. Each paper clip is 2.8 cm long.

She links the five paper clips together in a chain. The overlaps between the clips are equal.



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By how many centimetres does paper clip X overlap with paper clip Y?

(A) 0.20
(B) 0.25
(C) 0.65
(D) 0.70

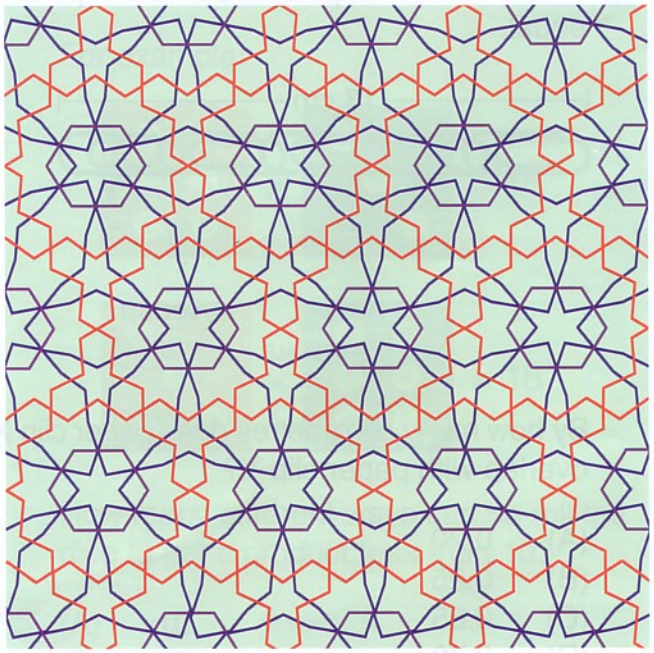
33. The decimal numbers from 0 to 9 can be written in a code of four-digit numbers using only the numerals 0 and 1, as shown.

Decimal number	Four-digit code
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101

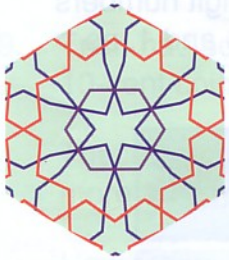
What is the decimal number 8 written in this code?

(A) 1000
(B) 1010
(C) 1100
(D) 1110

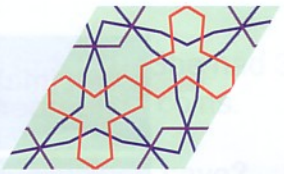
34. Fred wants to use a small section from the pattern shown to reproduce the pattern indefinitely using rotations, reflections and/or translations.



Which of these sections could he use?

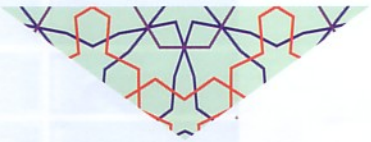


(A)



(B)

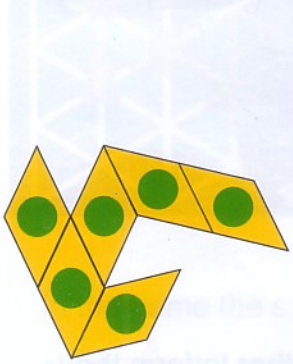
(C)



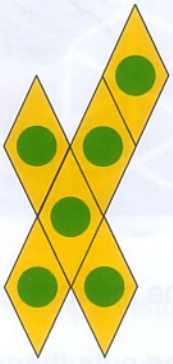
(D)

35. Maddy made a six-sided solid using a net. Every face of the solid is an identical rhombus, as shown.

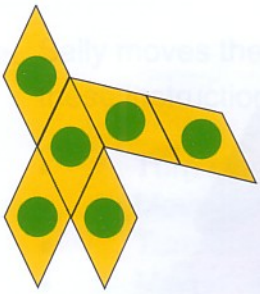
Which of these could be the net of Maddy's solid?



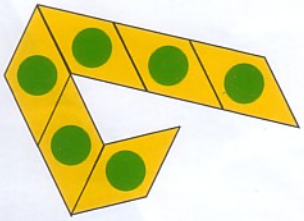
(A)



(B)



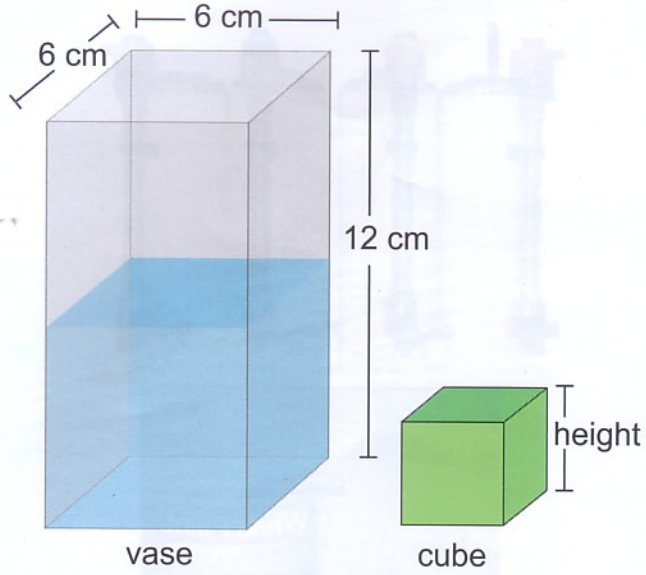
(C)



(D)

QUESTIONS F1 TO F5 ARE FREE RESPONSE.

F1. Ray has a vase in the shape of a square prism.



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He fills the vase half full of water.

After a cube was dropped into the vase, the volume of the water and the cube was 341 cm^3.

What is the **height**, in cm, of the cube?

(Write only the number on your answer sheet.)

F2. A remote island uses three types of coin in its currency, as shown.

Tamsin visits the island and is given two bags of coins.

The table shows, for each bag, the number of each type of coin and the total value.

Coin type	Bag X	Bag Y
Turtles	4	2
Palms	2	3
Shells	3	6
Total Value	5 Palms	9 Turtles

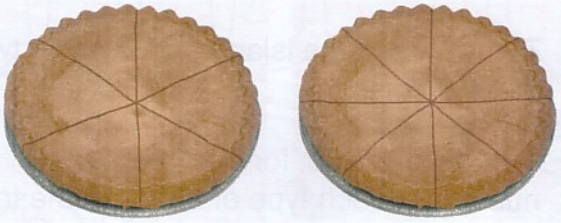
What is the total value of Bag Y in Shells?

(Write only the number on your answer sheet.)

F3. Talia had two identical pies.

She cut the first pie into 6 equal pieces.

She cut the second pie into 8 equal pieces.



The mass of each piece of the first pie was 40 grams more than the mass of each piece of the second pie.

What was the mass of each pie, in grams?

(Write only the number on your answer sheet.)

F4. Emma has to move 14 heavy boxes from a delivery area to a store room. She uses a trolley to help her move the boxes.

When Emma starts she is in the store room with the trolley.

- The trolley can take up to 3 boxes at a time.
- It takes her 30 seconds to move a box onto the trolley.
- It also takes her 30 seconds to move a box off the trolley.
- It takes 10 minutes to move the trolley from the delivery area to the store room no matter how many boxes it has on it.

When Emma finishes she leaves the trolley in the store room.

How many **minutes** will it take her to move all 14 boxes to the store room?

(Write only the number on your answer sheet.)

F5. Costa is using a machine that can put bursts of red, yellow, blue or black pigments into white paint to produce various colours and shades.

The machine puts in either 10 mL or 20 mL bursts.

How many **different** colours and shades can Costa produce using exactly two bursts of pigment?

(Write only the number on your answer sheet.)

END OF PAPER

This page may be used for working.