VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY

AIM 2005

Achievement Improvement Monitor

Year 7

STATEWIDE MATHEMATICS TEST

STUDENT DETAILS

TEACHERS, PLEASE COMPLETE CAREFULLY

2B PENCIL ONLY

CENTRALLY ASSESSED TASKS

Please shade the appropriate bubble(s) if this student did NOT do the task.

Short Answer Questions ◯

Extended Tasks ◯

Victoria
The Place To Be

AIM 2005

Year 7 Mathematics

Please print your name here.

_____

First Name   Last Name

Year 7 Practice Questions

P1 How many days in one week?

Shade one bubble
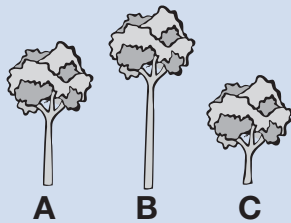
2   5   7   10
○   ○   ○   ○

P2
$$\begin{array}{r} 5 \\ \times\ 3 \\ \hline \end{array}$$

Write one number in each box

P3 Write the letters **A**, **B**, **C** to order these trees from **shortest** to **tallest**.

Write one letter in each box

A   B   C

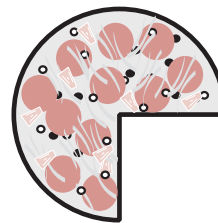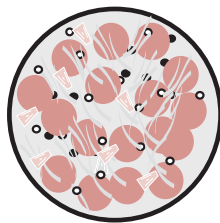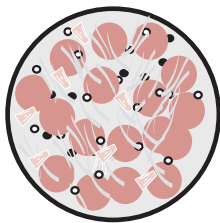|		

shortest   tallest

Year 7 Mathematics — _This task will take 45 minutes._
Students are NOT permitted to use calculators.

1 How many pizzas are shown?

Shade one bubble

$2\frac{1}{3}$ $2\frac{3}{4}$ $3\frac{1}{4}$ $3\frac{1}{3}$

○   ○   ○   ○

---

2 All the lines in this star are the same length.

If each line is 2 cm long, the perimeter of the star is

☐☐ cm

Write one number in each box

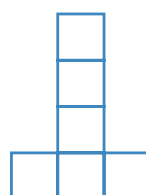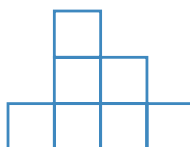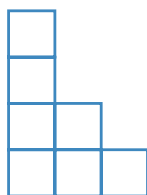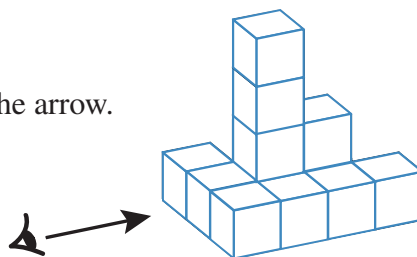**3** Neil builds a model with cubes.
He looks at it in the direction of the arrow.

What does he see?

○   ○   ○   ○

---

4 2872 − 1531 =

1203   1259   1331   1341

○   ○   ○   ○

---

5 0.5, 0.9, ? , 1.7, 2.1, . . .

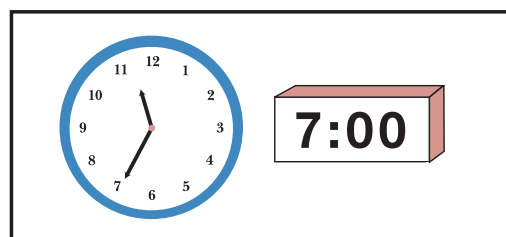The number missing from this series is
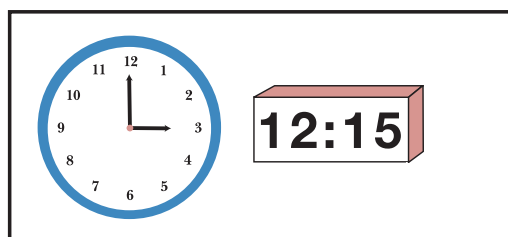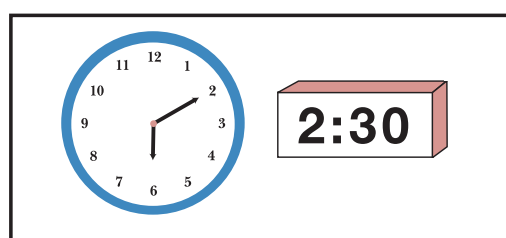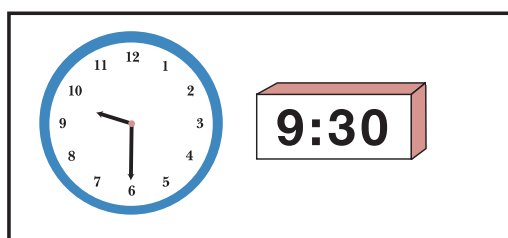
1.2   1.3   1.4   1.5

○   ○   ○   ○

---

6 Which pair of clocks shows the same time?

9:30

○

2:30

○

12:15

○

7:00

○

7 Write the letters **A**, **B**, **C** to order these prisms from **smallest** to **largest** volume.

A   B   C

smallest   largest

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8 Write the letters **A**, **B**, **C**, **D** to order these marked angles from **smallest** to **largest**.

A   B   C   D

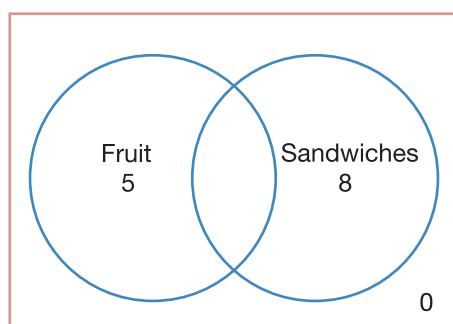smallest   largest

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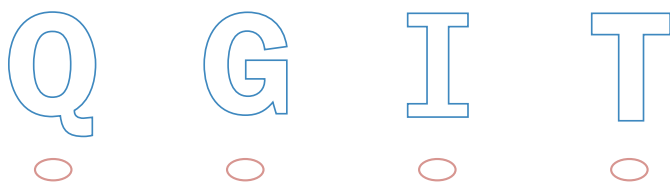**9** A group of 25 students was surveyed on what they ate for lunch. The results were summarised in the Venn diagram.

Fruit
5

Sandwiches
8

0

The number of students who ate **both** fruit and sandwiches is

○   6
○   12
○   17
○   19

10 Which letter has **exactly** one line of symmetry?

Q   G   I   T

○   ○   ○   ○

---

11 $31 \times 24 =$ ☐☐☐

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12 The temperature in an oven was 145°C.
It was increased by 58°C and then decreased by 23°C.

What is the temperature now?

☐☐☐ °C

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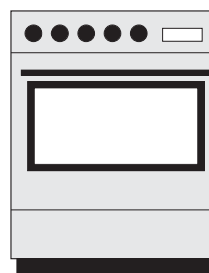
13 The mean of four numbers is 10.
The first three numbers are 8, 12 and 9.

The fourth number is

   4   10   11   40

  ○   ○   ○   ○

---

14 The wheel used to play a game called 'Pets Galore' is shown below.
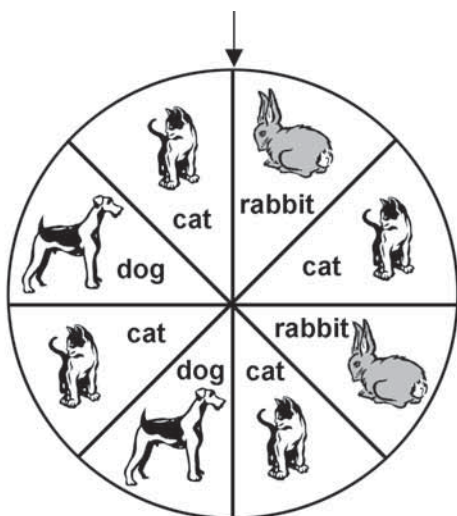
The wheel is spun again and the arrow points to an animal.

The chance that it points to a **cat** is

○   impossible.
○   one in eight.
○   fifty-fifty.
○   certain.

15

The marbles in this bag are blue (B), red (R), green (G) and yellow (Y).

A marble is randomly selected.

The probability that it is green (G) is

$\dfrac{1}{5}$ $\dfrac{2}{5}$ $\dfrac{3}{5}$ $\dfrac{4}{5}$
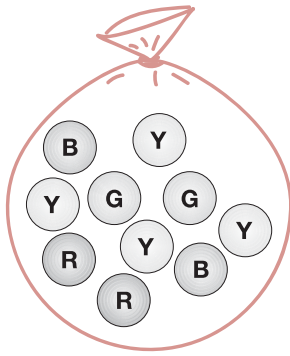
○   ○   ○   ○

16

A car is travelling on a highway at 90 km/hr.

How long will it take to travel 135 km?

○   0.5 hr
○   1.0 hr
○   1.5 hr
○   2.0 hr

17

Jane bought an autographed football for $200.

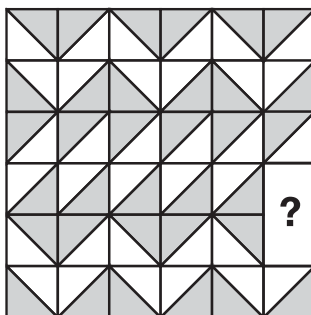What is the football worth if its value increases by 20%?

○ $240
○ $320
○ $420
○ $440

18

Which tiles should go in the space to complete the pattern?

○   ○   ○   ○

19 What area of lawn can be sown using this bag of lawn seed?

Lawn Seed
1000 g
Sow at rate of
25 g per m²

- ○ 4 m²
- ○ 40 m²
- ○ 160 m²
- ○ 200 m²

---

20 6 pizzas are each cut into 6 slices and shared equally between 9 people.

How many slices does each person get?

4	6	8	9
○	○	○	○

---

21 $(5 \times 100) + (7 \times 10) + (3 \times 1) + (6 \times \frac{1}{10}) + (8 \times \frac{1}{100})$ is equal to

573.68	57.368	57 368	5736.8
○	○	○	○

---

22 What is $\frac{3}{10}$ of $80?

$8	$10	$24	$30
○	○	○	○

---

23 Which survey questionnaire below could be used to collect data on the proportion of males with fair hair and brown eyes?

Age _____	Age _____	Hair colour _____	Male/Female _____
Male/Female _____	Hair colour _____	Height _____	Hair colour _____
Hair colour _____	Height _____	Eye colour _____	Height _____
Height _____	Eye colour _____	Suburb _____	Eye colour _____
○	○	○	○

24 The dot plot shows the number of movies watched by students in a Year 7 class during the school holidays. (Each dot represents one student.)

Number of movies watched
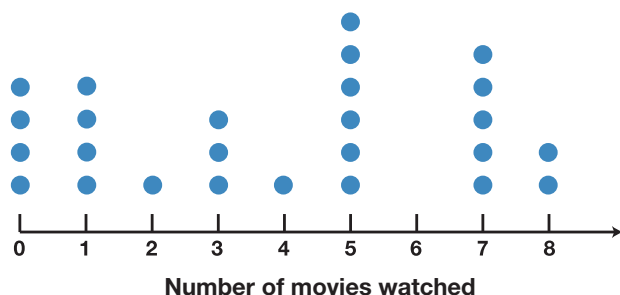
How many students watched 5 or more movies?

25 $18.67 + 5.9 + 12.97 =$

26 Solve for x

$55 = 2x + 7$

$x =$

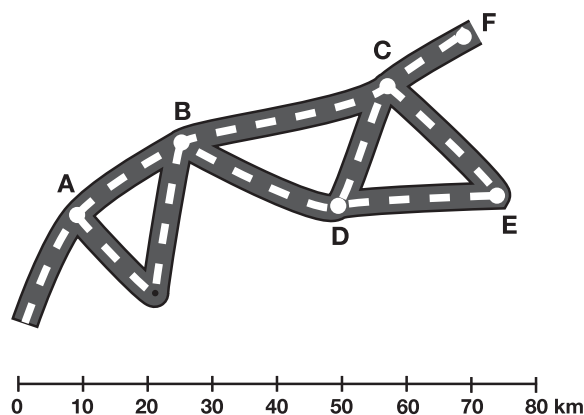**27** A one litre carton of fruit juice weighs between

○　　0 kg and 0.5 kg.
○　　0.5 kg and 1.5 kg.
○　　1.5 kg and 2.5 kg.
○　　2.5 kg and 3.5 kg.

28

The shortest distance from **C** to **E** is about

○　　10 km
○　　25 km
○　　40 km
○　　55 km

Scale

0　10　20　30　40　50　60　70　80 km

29 A toy car made to scale 1:40 has a length of 8 cm.
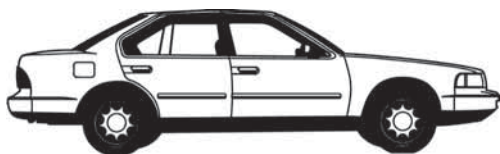
What is the length of the full-sized car?

- ○ 8 cm
- ○ 40 cm
- ○ 140 cm
- ○ 320 cm

---

30 How many vertices does this solid have?
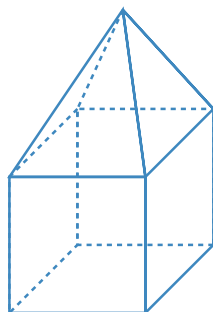
- ○ 8
- ○ 9
- ○ 15
- ○ 16

---

31 $\sqrt{\dfrac{9}{25}} =$

$\dfrac{3}{25}$ $\dfrac{9}{25}$ $\dfrac{3}{5}$ $\dfrac{9}{5}$

○ ○ ○ ○

32

1 m

3 m

3 m

7 m
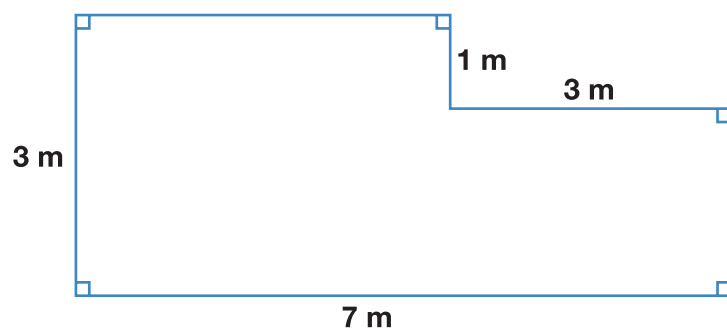
The perimeter of this shape is

[ ][ ] m

33 An isosceles triangle is drawn.
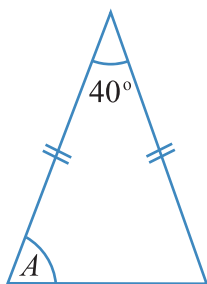
What is the size of angle A?

$40°$

A

☐☐ °

34

$3 \times 2^3 =$

- ○ 18
- ○ 24
- ○ 48
- ○ 216

---

35 $9x + 3 - 4x + 3$ can be simplified to

| 11 | $5x$ | $5x - 6$ | $5x + 6$ |
| ○ | ○ | ○ | ○ |

---

36 $18 \div 0.6 =$?

| 0.03 | 0.3 | 3 | 30 |
| ○ | ○ | ○ | ○ |

---

37 The maximum daily temperatures (°C) for two weeks in August were recorded.

	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Week 1	12	13	14	14	14	14	15
Week 2	12	13	13	13	13	14	15

Which frequency table is correct?

Temp	Freq
12	2
13	5
14	5
15	2

○

Temp	Freq
12	1
13	5
14	5
15	3

○

Temp	Freq
12	2
13	5
14	6
15	2

○

Temp	Freq
12	2
13	4
14	5
15	3

○

38

The scatterplot shows total monthly rainfall plotted against the number of rainy days per month.
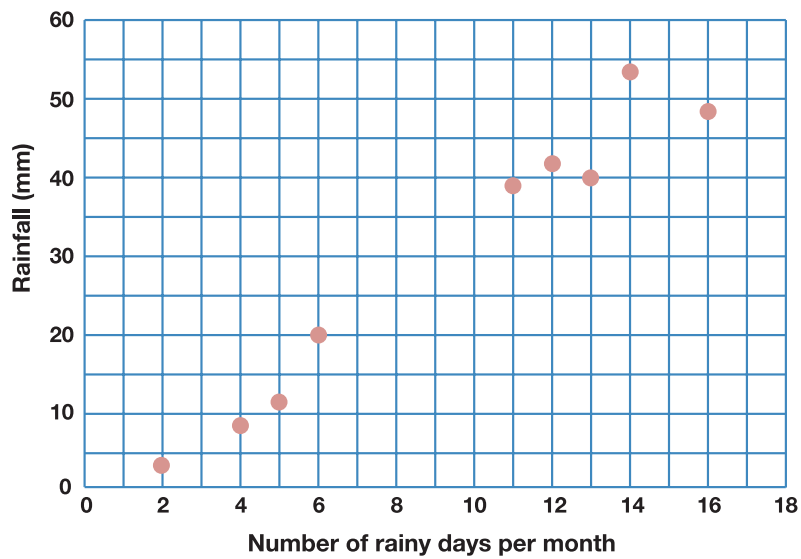
How much rainfall would you expect in a month with 8 rainy days?

- ◯ 10 mm
- ◯ 25 mm
- ◯ 40 mm
- ◯ 55 mm

39

Which rule connects y to x in the following table?

x	0	1	2	3	4	5
y	−1	0	1	2	3	4

- ◯ $y = 1$
- ◯ $y = x$
- ◯ $y = x + 1$
- ◯ $y = x - 1$

40

The angle marked between the clock hands is
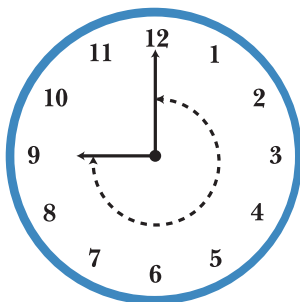
- ◯ 45°
- ◯ 90°
- ◯ 180°
- ◯ 270°

41 The surface area of the prism is

2 cm

5 cm

1 cm
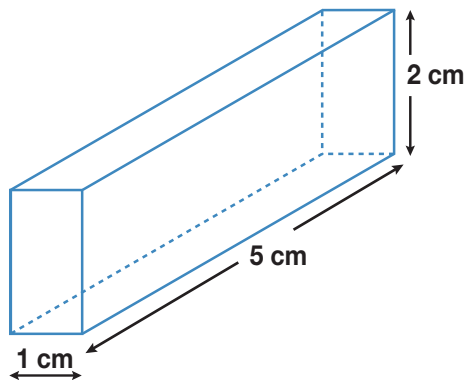
○ 10 cm²
○ 17 cm²
○ 34 cm²
○ 42 cm²

42 For each call a mobile phone company charges a 45 cent connection fee and 20 cents for every minute of call time.

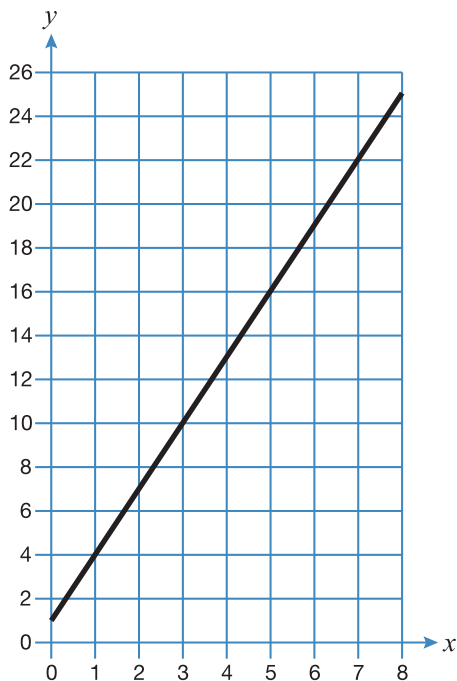Which equation represents the total cost, c (in cents), of a phone call lasting m minutes?

○ $c = 20m + 45$
○ $c = 45m + 20$
○ $c = 20(m + 45)$
○ $c = 45(m + 20)$

43 A graph of $y = 3x + 1$ is shown.

What is the value of x when $y = 22$?

$x = \boxed{}$

STOP HERE

AIM 2005

Year 7
Mathematics

Extended
Tasks

PLEASE DO NOT TURN THE PAGE UNTIL YOU ARE TOLD BY YOUR TEACHER.

Please print your name here.

First Name   Last Name
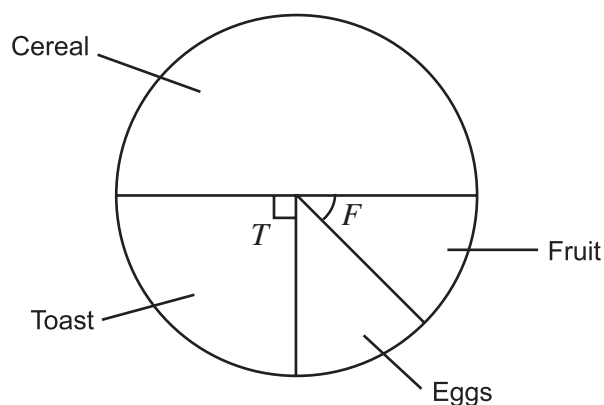
Students are NOT permitted to use calculators.

Task 1 – Graphs

Pam completed a survey to find out what students in Year 7 ate for breakfast.

She surveyed 80 students and showed her results in this pie chart.

1 Complete the table to show how many students ate each type of breakfast food.

Breakfast food	Number of students
Fruit	10
Eggs	
Toast	
Cereal	40
Total	**80**

Write your answer in each space

2 What is the size (in degrees) of angle *T* in the pie chart?

°

3 What is the size (in degrees) of angle *F* in the pie chart?
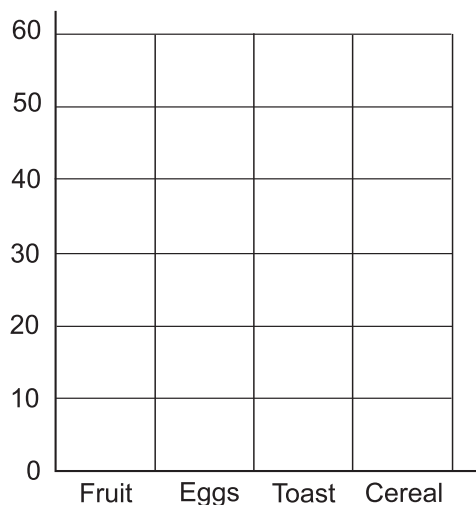
°

4 Of the students who ate cereal, 25% of them ate cornflakes.

How many students ate cornflakes?

5 Draw a bar (column) graph to show the type of food the students ate for breakfast.

```
60 ┌───┬───┬───┬───┐
   │   │   │   │   │
50 ├───┼───┼───┼───┤
   │   │   │   │   │
40 ├───┼───┼───┼───┤
   │   │   │   │   │
30 ├───┼───┼───┼───┤
   │   │   │   │   │
20 ├───┼───┼───┼───┤
   │   │   │   │   │
10 ├───┼───┼───┼───┤
   │   │   │   │   │
 0 └───┴───┴───┴───┘
   Fruit  Eggs  Toast  Cereal
```

Pam decided to survey **another** 40 students. The results of her survey were that 10 said they ate cereal, 10 said they ate fruit and 20 said they ate toast.

These **new** results were **added** to the earlier results.

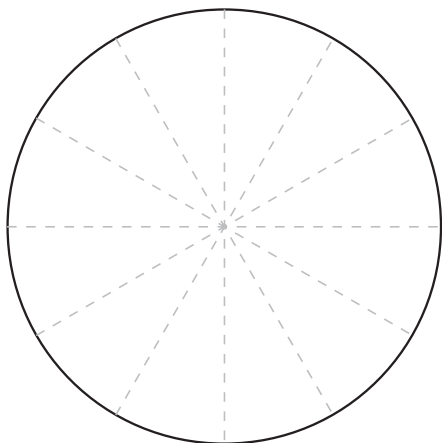**6** Complete the table below, including the **new** results.

Breakfast food	Number of students
Fruit	20
Eggs	
Toast	
Cereal	
Total	**120**

7 Complete the pie chart to show the results from the table in question 6.
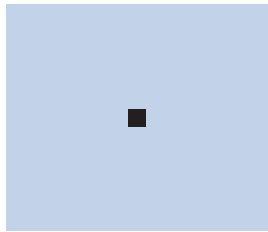
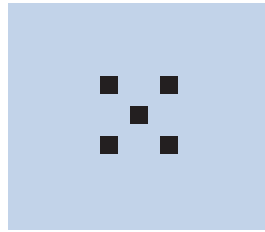Clearly draw the boundary lines and label the type of breakfast food.
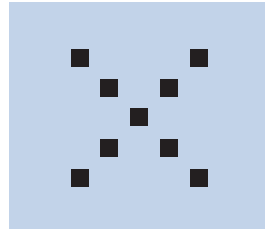
Task 2 – Tiling Patterns

Justin is arranging some tiles in the following pattern.
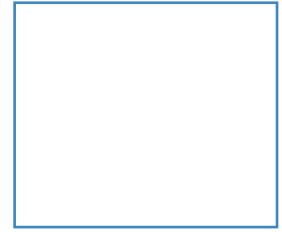

| Step 1 | Step 2 | Step 3 | Step 4 |

8   Draw the fourth step for this pattern in the space provided for Step 4.

(Draw your answer in the space)

9   Complete the following table for Steps 4 and 5.

(Write your answer in each space)

Step number	1	2	3	4	5
Number of tiles	1	5	9		

Justin has found a rule to work out the number of tiles for each step.

This is his rule: *number of tiles = step number × 4 − 3*

10   What is the number of tiles needed to make Step 20?

11   What is the *step number* that would have 33 tiles in it?

Diane also has some tiles. She is arranging her tiles in the following pattern.

| Step 1 | Step 2 | Step 3 |

12   Complete the table below.

Step number	1	2	3		6
Number of tiles	5	7	9		

13   Complete the rule below to show how Diane could work out the number of tiles for each step.

number of tiles = step number × ☐ + ☐

14   How many tiles are needed to make Step 100?