MCEECDYA
Ministerial Council for Education,
Early Childhood Development and Youth Affairs

NATIONAL ASSESSMENT PROGRAM
LITERACY AND NUMERACY

YEAR
9
2010

NUMERACY
CALCULATOR ALLOWED

SESSION 1

0:40

Time available for students to complete test: 40 minutes

Use 2B or HB pencil **only**

Do not write on this page.

PRACTICE QUESTIONS

P1

50, 100, 150, 200, 250, **?**

Shade one bubble.

Which number comes next in this sequence?

251	260	300	350
⬭	⬭	⬭	⬭

P2

Use numbers to write one dollar and seventy-five cents.

Write your answer in the box.

$ ☐

P3

268 cents equals

Write your answer in the boxes.

☐ dollars and ☐ cents.

YEAR 9 **NUMERACY (CALCULATOR ALLOWED)**

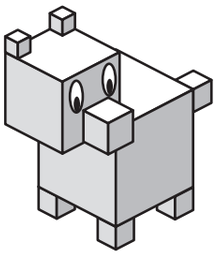
1 What number is missing from this number sentence?

Shade one bubble.

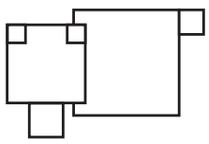
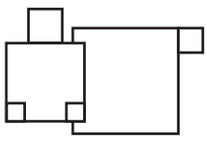
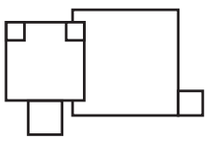
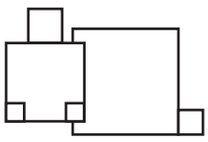
$5 \times$ **?** $+ 15 = 85$

2	10	14	20
⬭	⬭	⬭	⬭

2 Tracey drew this design for a wooden toy.

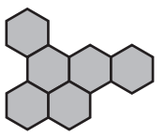


Which picture shows a **top** view of Tracey's design?

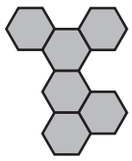
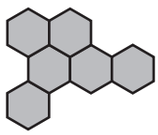
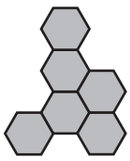
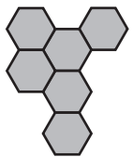





⬭ ⬭ ⬭ ⬭

3 Joe made this design by joining six tiles together.
The tiles are grey on all faces.



Which of these could **not** be Joe's design?

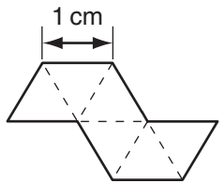
⬭ ⬭ ⬭ ⬭

4 Which expression is always equal to $2x + 5 + 3x + 4$?

$7x + 7$	$14x$	$5x + 9$	$8x + 6$
⬭	⬭	⬭	⬭

5 This shape is made with 6 equilateral triangles.

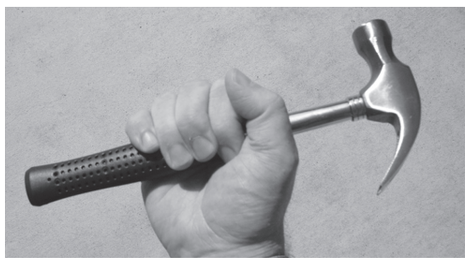
Shade one bubble.



What is the perimeter of the shape?

6 cm	8 cm	10 cm	18 cm
⬭	⬭	⬭	⬭

6



Which of these is the best estimate for the mass of this hammer?

30 grams	300 grams	30 kilograms	300 kilograms
⬭	⬭	⬭	⬭

7 Lyn enlarged a copy of picture A and labelled it picture B.

picture A

picture B

The lengths in picture B are 3 times the lengths in picture A.

How high is the marked height in picture A?

0.9 cm	1.11 cm	1.35 cm	8.1 cm
⬭	⬭	⬭	⬭

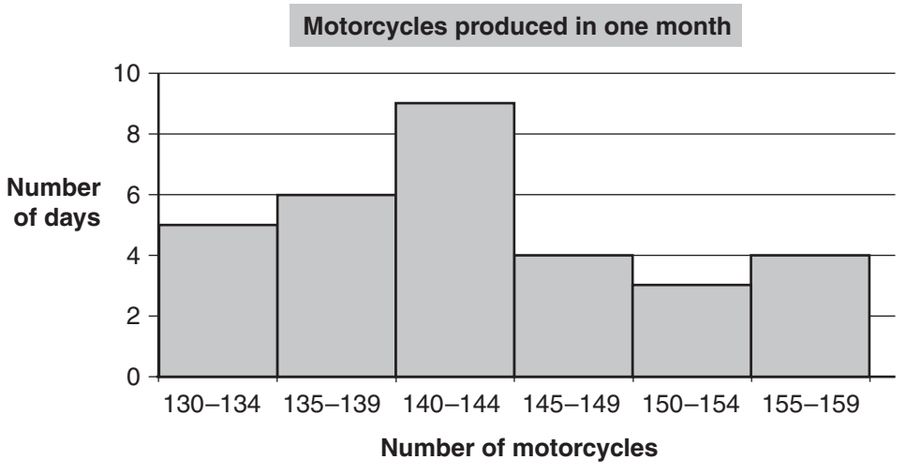
8 In Sandra's school there are 60 teachers and 900 students.

What is the ratio of teachers to students?

Shade one bubble.

1:15 ⬭ 1:16 ⬭ 15:16 ⬭ 30:2 ⬭

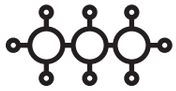
9 This graph shows data on how many motorcycles a factory produced in one month.



On how many days did the factory produce **less** than 140 motorcycles?

5 ⬭ 6 ⬭ 9 ⬭ 11 ⬭

10 Nathan made this pattern of shapes using large and small circles.

Shape			
Large circles	1	2	3
Small circles	4	6	8

He continues the pattern.

How many **small** circles are in Nathan's 14th shape?

12 ⬭ 20 ⬭ 28 ⬭ 30 ⬭

11 A prize of $5934 is shared equally among 15 friends.

How much does each person get in **dollars** and **cents**?

Write your answer in the boxes.

[ ] dollars and [ ] cents

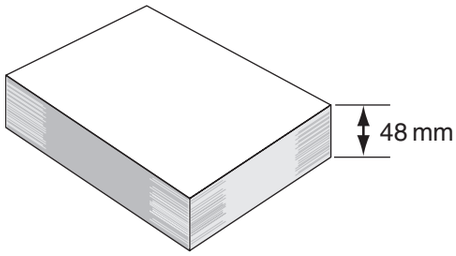
12 The top speed of this wombat is 660 metres per minute.

Shade one bubble.

What is the top speed of the wombat in metres per second?

11	66	110	600
⬭	⬭	⬭	⬭

13 This stack of paper is 48 mm thick.

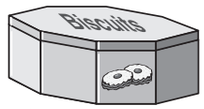


Each sheet of paper in the stack is 0.09 mm thick.

Which value is closest to the number of sheets in the stack?

432	480	500	533
⬭	⬭	⬭	⬭

14 A biscuit tin is in the shape of a **regular** octagonal prism.
The lid is taken off and rotated until it is able to fit back on the tin.



What is the **smallest** number of degrees of rotation that will achieve this?

22.5°	45°	60°	90°
⬭	⬭	⬭	⬭

15 Kiri has to find the value of this expression **without** a calculator.

Shade one bubble.

$20 - 12 \times \sqrt{9.5 + 6.5}$

Which calculation should she do first?

$20 - 12$	$12 \div 9.5$	$\sqrt{9.5}$	$9.5 + 6.5$
⬭	⬭	⬭	⬭

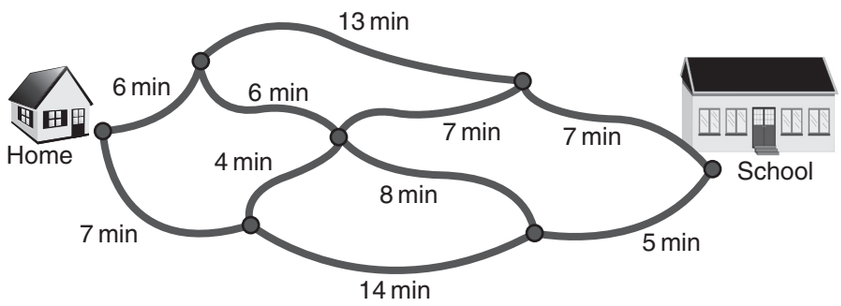
16 This block has 6 faces which are numbered from 1 to 6.
Vicky throws the block 1000 times to test it and records the outcomes.

Number on top face	1	2	3	4	5	6
Frequency	150	360	146	144	68	132

What is the probability of rolling a 2 based on Vicky's results?

$\frac{1}{6}$	$\frac{1}{60}$	$\frac{9}{25}$	$\frac{3}{500}$
⬭	⬭	⬭	⬭

17 Brian's mother drives him to school.
The diagram shows the routes they can take and the travel times.



What is the **shortest** time for Brian to get to school?

23 minutes	24 minutes	25 minutes	26 minutes
⬭	⬭	⬭	⬭

18 An electrician calculates the price of a job using a service fee and an amount **per hour**.
This table shows some of the job prices.

Shade one bubble.

Hours	2	4	5	6
Job price	$160	$252	$298	$344

How are the job prices calculated?

- ○ $80 service fee + $40 per hour
- ○ $80 service fee + $80 per hour
- ○ $68 service fee + $92 per hour
- ○ $68 service fee + $46 per hour

19 Jack is checking the price of four detergents.

Hex detergent
$7.85, 1100 mL

Sun detergent
$5.25, 750 mL

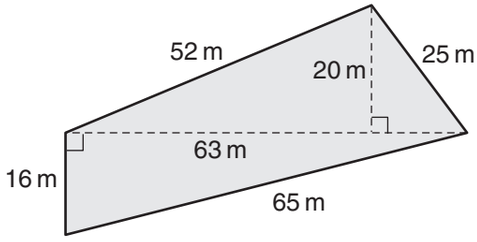
Green detergent
$4.50, 600 mL

Lemon detergent
$4.25, 500 mL

Which detergent is the cheapest per litre?

Hex	Sun	Green	Lemon
○	○	○	○

20 The diagram shows some measurements of a nature reserve.



What is the area of the nature reserve?

158 m^2	936 m^2	1134 m^2	1170 m^2
○	○	○	○

21 Mount St. Helens is a volcano that erupted in 1980.
Before it erupted, it was 2950 m high.
After the eruption, it was 2550 m high.

Shade one bubble.

Mount St. Helens before eruption

Mount St. Helens after eruption

By what percentage of its original height did it decrease after the eruption?

13.6%	15.7%	86.4%	115%
⬭	⬭	⬭	⬭

22 As Mike skydives, the air temperature increases by the same amount every 100 metres.

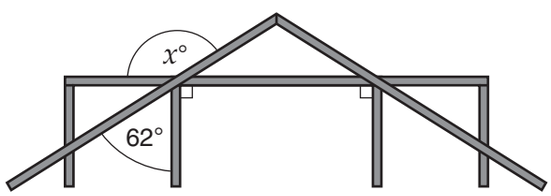
At a height of 5000 metres the temperature is –18 °C.
At ground level the temperature is 22 °C.

What is the air temperature at a height of 2000 metres?

4 °C	6 °C	8 °C	16 °C
⬭	⬭	⬭	⬭

23 The diagram shows part of a roof structure.

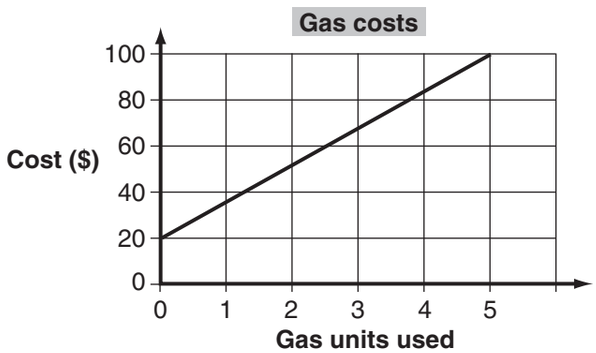
Write your answer in the box.



What is the value of x?

24 This graph shows how to find the cost of the gas used in Jim's house.

Shade one bubble.



The expression to calculate the cost is

- ⬭ 20 + (5 × gas units used)
- ⬭ 20 + (16 × gas units used)
- ⬭ 20 + (20 × gas units used)
- ⬭ 20 + (100 × gas units used)

25 Greg sold one hot dog every 2 minutes at a festival.

At this rate, how many minutes would it take to sell $110 worth of hot dogs?

- ⬭ 25 minutes
- ⬭ 50 minutes
- ⬭ 55 minutes
- ⬭ 100 minutes

26 Jamie surveyed all the Year 7 students at his school about their favourite sport.

Favourite sport	Number of students
Basketball	85
Cricket	35
Football	55
Netball	75

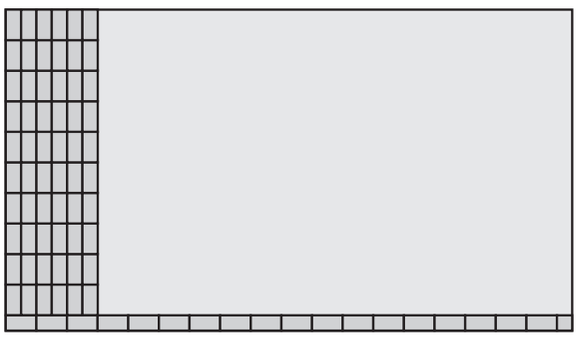
Which sport did 3 out of every 10 Year 7 students choose as their favourite?

Basketball ⬭ Cricket ⬭ Football ⬭ Netball ⬭

27 Dan has started to cover a rectangular floor with tiles.
The tiles are twice as long as they are wide.

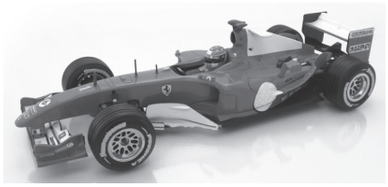
Write your answer in the box.

The floor is $10\frac{1}{2}$ tiles wide and $18\frac{1}{2}$ tiles long.



Using this pattern, what is the **total** number of tiles Dan will use to cover the floor?

28 A racing car used 255 litres of fuel to complete a 340 km race.



On average, how many litres of fuel did the car use every 100 km?

litres per 100 km

29 Amy recorded a set of scores for a netball team.

Shade one bubble.

17, 22, 26, 26, 30, 30, 30, 30, 32, 39, 41, 42

She then included an extra score of 15.

Which of these values would increase?

mean	mode	median	range
⬭	⬭	⬭	⬭

30

Write your answer in the box.

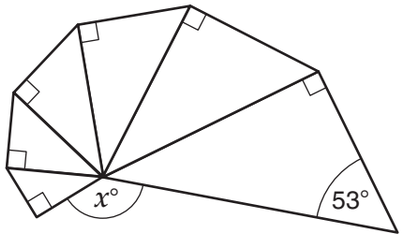
When this car moves forward by 180 cm, each wheel does one full turn.

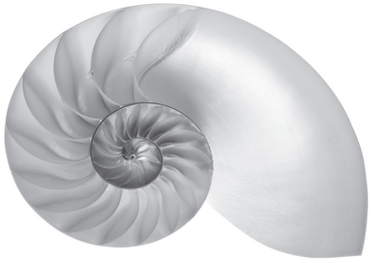
What is the diameter of the wheels to the nearest centimetre?

[ ] cm

31

A model of how a shell grows can be made using enlarged copies of the same triangle.
Here is a model.





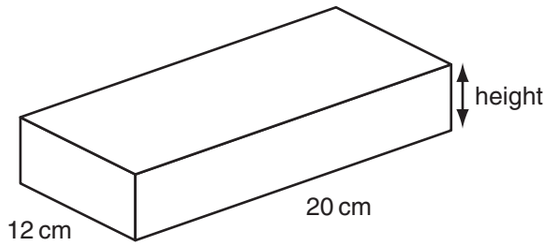
What is the value of x? [ ]

32

The surface area of a box is given by the rule:

total surface area = 2 × [(*width* × *height*) + (*width* × *length*) + (*height* × *length*)]

The box shown has a total surface area of 768 square centimetres.



What is the **height** of the box? [ ] centimetres

STOP – END OF TEST