NAPLAN NATIONAL ASSESSMENT PROGRAM Literacy and Numeracy

acara AUSTRALIAN CURRICULUM, ASSESSMENT AND REPORTING AUTHORITY

YEAR 9 2013

# NUMERACY
## CALCULATOR ALLOWED

SESSION 1

0:40

Time available for students to complete test: 40 minutes

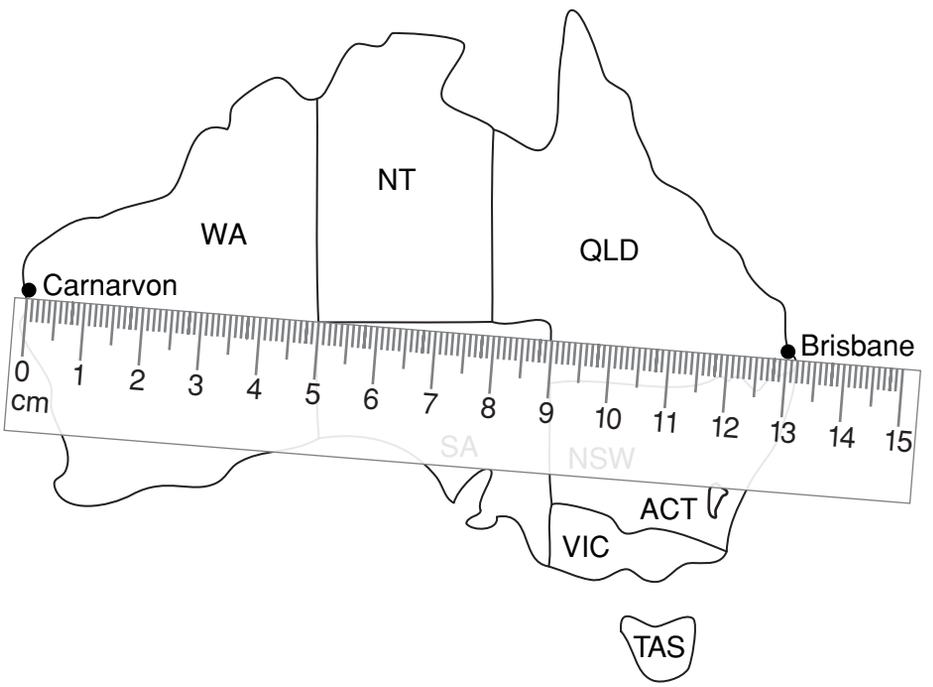
Use 2B or HB pencil **only**

**1** One lap of a park is 3.52 kilometres.

How many kilometres is 16 laps?

| 4.55 | 18.52 | 22 | 48.52 | 56.32 |
|---|---|---|---|---|
| ⬭ | ⬭ | ⬭ | ⬭ | ⬭ |

**2** The scale of this map is 1 cm = 300 km.




What is the approximate direct distance from Brisbane to Carnarvon?

| 1300 km | 2300 km | 3000 km | 3900 km |
|---|---|---|---|
| ⬭ | ⬭ | ⬭ | ⬭ |

**3** $1.5 \times ? = 0.6$

What value of ? makes this number sentence correct?

| 0.4 | –0.9 | 0.9 | 2.5 |
|---|---|---|---|
| ⬭ | ⬭ | ⬭ | ⬭ |

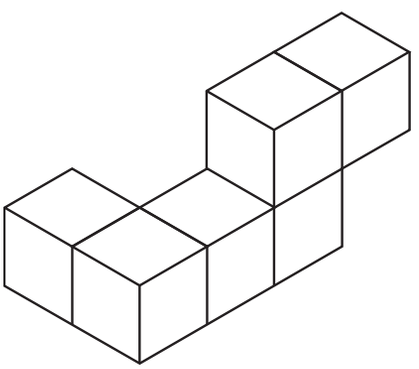
**4** This table shows how many people attended three football games.

| Number of People Attending | |
|---|---|
| Friday night game | 53 403 |
| Saturday game | 41 470 |
| Sunday game | 62 845 |

To the nearest thousand, what was the total number of people attending the three games?

156 000 ⬭ 157 000 ⬭ 158 000 ⬭ 160 000 ⬭

**5** There are 6 cubes in this 3D puzzle.



The puzzle is completely dipped into red paint.

When the cubes are separated, how many faces will be red?

36 ⬭ 31 ⬭ 30 ⬭ 26 ⬭ 10 ⬭

**6** One year ago Jay was 140 cm tall.

He is 5% taller now than he was then.

How tall is Jay now?

133 cm ⬭ 145 cm ⬭ 147 cm ⬭ 210 cm ⬭

**7** Jade buys a smartpad online that costs $319.

With its packaging, it weighs 1.6 kg.

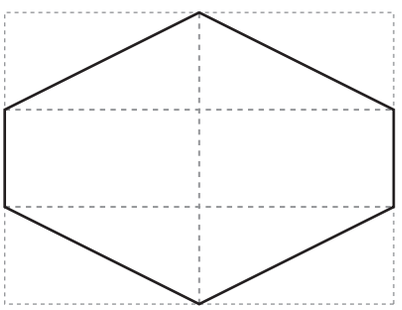
Postage costs are shown in the table below.

| **Total mass of package** | Up to 500 g | 500 g to less than 1 kg | 1 kg to less than 1.25 kg | 1.25 kg to less than 1.5 kg | 1.5 kg to less than 1.75 kg | 1.75 kg to less than 2 kg |
|---|---|---|---|---|---|---|
| **Postage cost** | $23 | $36.50 | $43.25 | $50 | $56.75 | $63.50 |

In total, how much does Jade pay for her smartpad and postage?

$342 ⬭ $362.25 ⬭ $375.75 ⬭ $382.50 ⬭

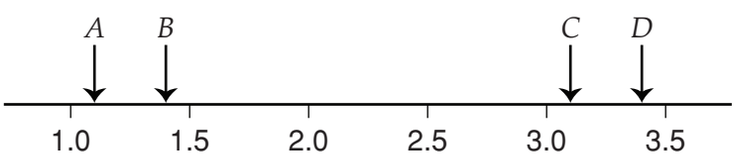
**8** This hexagon is constructed on a grid of six rectangles. Each rectangle measures 6 cm x 4 cm.



What is the area of the hexagon?

60 cm$^2$ ⬭ 72 cm$^2$ ⬭ 96 cm$^2$ ⬭ 144 cm$^2$ ⬭

**9**




Which arrows show the approximate locations of $\sqrt{2}$ and $\pi$ on the number line?

*A* and *C* ⬭ *A* and *D* ⬭ *B* and *D* ⬭ *B* and *C* ⬭

**10**

**4.5 million taxpayers gave to charities in 2008.**

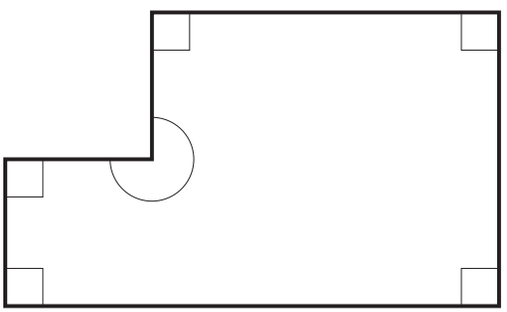
Average donation was $523 per taxpayer.

What was the total amount given to charities by these taxpayers in 2008?

$2 353 500 ⬭ $8 604 200 ⬭ $2 353 500 000 ⬭ $8 604 200 000 ⬭

**11**

This is the floor plan of a room.



What is the sum of the six marked interior angles?

540° ⬭ 630° ⬭ 720° ⬭ 810° ⬭

**12**

There are 61 guests at a party.

There are 17 more men than women.

How many women are at the party?

21 ⬭ 22 ⬭ 39 ⬭ 44 ⬭

**13** Tim earned $300 in 5 days.

After the first day, he earned $10 more each day than the day before.

How much did Tim earn on the first day?

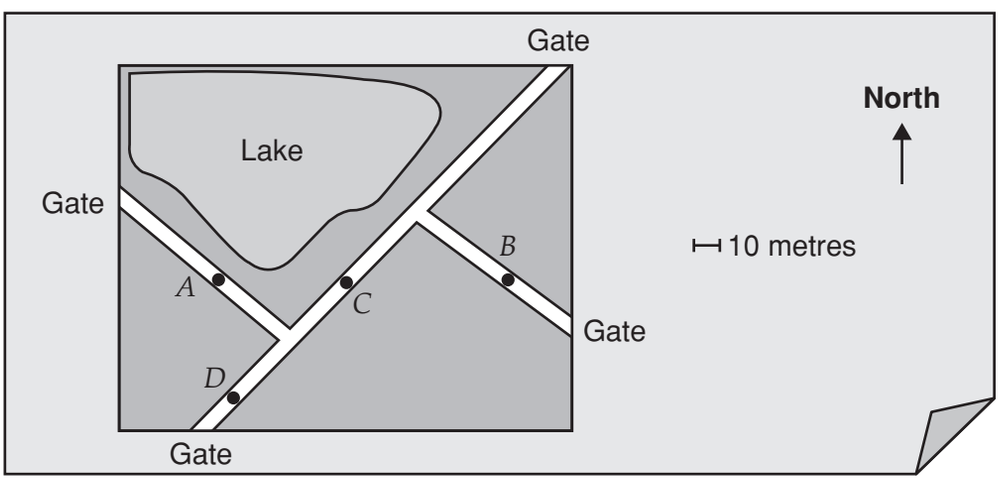
| $30 | $40 | $50 | $60 |
|---|---|---|---|
| ⬭ | ⬭ | ⬭ | ⬭ |

**14** Mel drives her car a distance of 40 km at a constant speed of 30 km/h.

How long does the drive take?

| 45 min | 1 h 10 min | 1 h 20 min | 1 h 33 min |
|---|---|---|---|
| ⬭ | ⬭ | ⬭ | ⬭ |

**15** This is a map of a park.




Josh entered the park through one of the gates.
He then walked south-east along a path.
After 90 metres he turned right.
He then walked another 30 metres and stopped.

Which point on the map shows where Josh stopped?

| *A* | *B* | *C* | *D* |
|---|---|---|---|
| ⬭ | ⬭ | ⬭ | ⬭ |

**16** A circle has a circumference of 40 cm.

Which of these is closest to the radius of the circle?

| 3.6 cm | 6.4 cm | 12.7 cm | 62.8 cm |
|---|---|---|---|
| ⬭ | ⬭ | ⬭ | ⬭ |

**17** This table shows how the mass of barley is related to its volume.

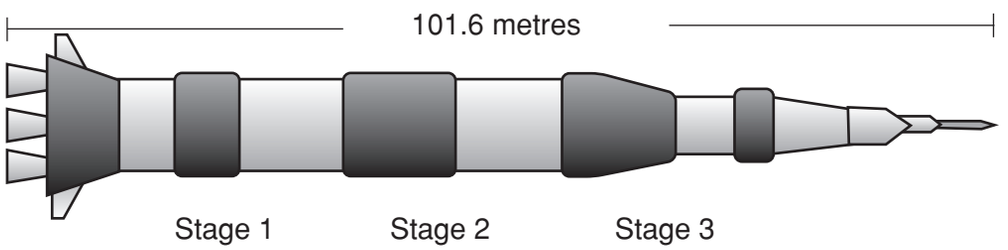
| Volume (cubic metres) | Mass (tonnes) |
|---|---|
| 50 | 30 |
| 100 | 60 |
| 150 | 90 |
| 200 | 120 |

A silo contains 105 cubic metres of barley.

How many tonnes of barley are in the silo?

| 63 tonnes | 65 tonnes | 165 tonnes | 175 tonnes |
|---|---|---|---|
| ⬭ | ⬭ | ⬭ | ⬭ |

**18** This is a diagram of a Saturn V rocket.




Stage 1 of the rocket was 42 metres in length.

Which of these is closest to the length of Stage 1 as a percentage of the total length of the rocket?

| 24% | 41% | 42% | 60% |
|---|---|---|---|
| ⬭ | ⬭ | ⬭ | ⬭ |

**19** A group of 200 Year 9 students was asked which activity they spent most time doing after school.

The table shows the results.

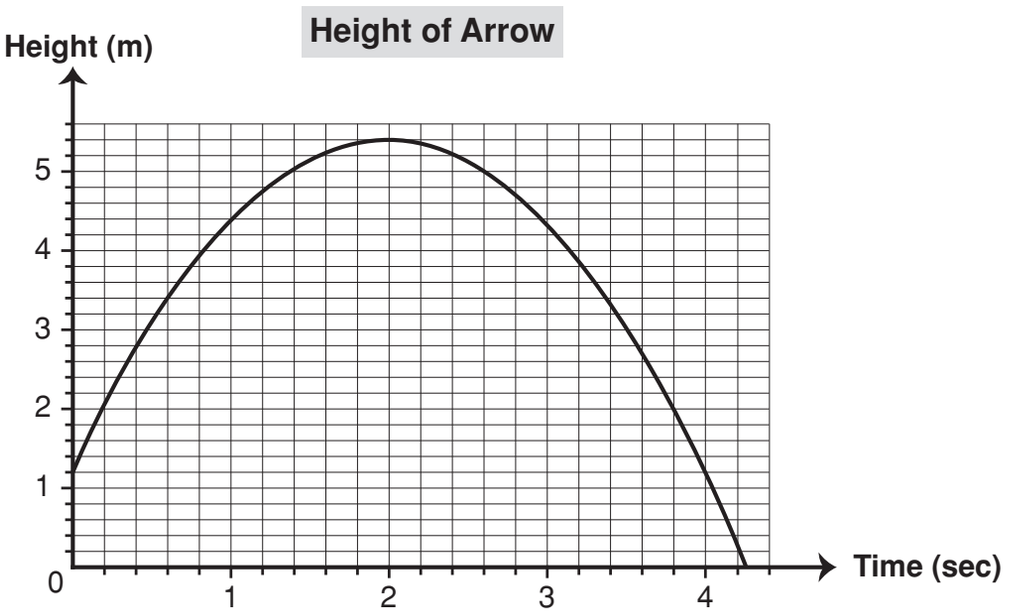
| Activity | Number of students |
|---|---|
| Sport | 52 |
| Music practice | 40 |
| Part-time work | 59 |
| Homework | 32 |
| Other | 17 |

One of these students is chosen at random.

What is the probability that the student spends most time doing music practice after school?

0.2 ⬭ 0.4 ⬭ 0.5 ⬭ 0.8 ⬭

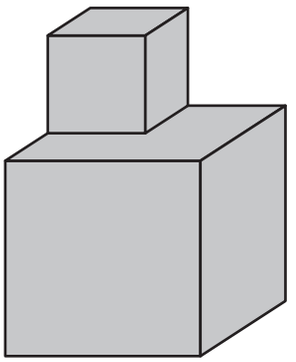
**20** Mia shoots an arrow into the air. This graph shows the height of the arrow above ground level for the time that the arrow is in the air.




For how long is the arrow at a height of more than 2 metres above the ground?

3.4 sec ⬭ 3.6 sec ⬭ 3.8 sec ⬭ 4.3 sec ⬭

**21** A cube of side length 2 cm is glued onto the top corner of a cube of side length 4 cm.



What is the surface area of the new object?

92 cm$^2$ ⬭ 112 cm$^2$ ⬭ 116 cm$^2$ ⬭ 120 cm$^2$ ⬭

**22** This table shows attendance at a concert over four nights.

| Night | Number of people |
|---|---|
| Wednesday | 310 |
| Thursday | 390 |
| Friday | 380 |
| Saturday | 420 |

The cost of each ticket was $20.

What was the mean amount of money collected from ticket sales per night?

$ ☐

**23** This list shows the heights of ten students, in centimetres.

155, 173, 150, 182, 164, 170, 168, 175, 158, 180

What is the range of the heights?

⬭ 25 centimetres
⬭ 27 centimetres
⬭ 30 centimetres
⬭ 32 centimetres

**24**

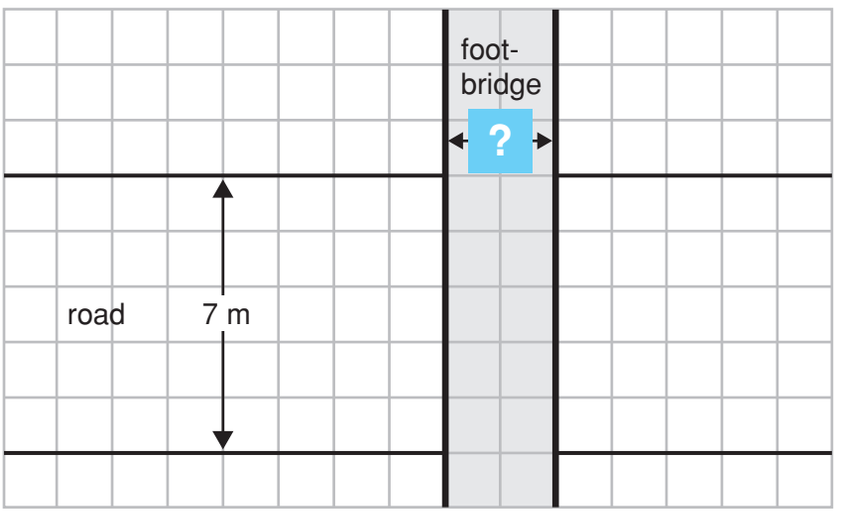
Alex spent 85% of his money on a surfboard.

The surfboard cost $340.

How much money did Alex have left after he bought the surfboard?

$ ☐

**25**




This scale diagram shows a footbridge crossing over a road.

The width of the road is 7 metres.

What is the width of the footbridge?

☐ metres

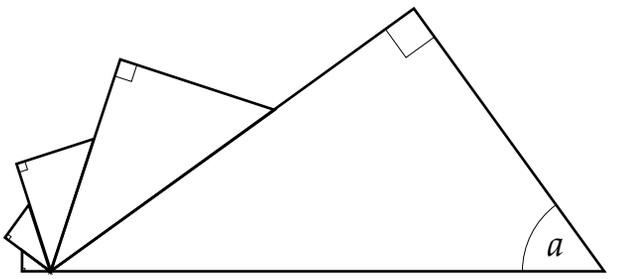
**26**

The total mass of two bacteria is $5.4 \times 10^{-12}$ grams.
The mass of one of them is $4 \times 10^{-13}$ grams.

What is the mass of the other?

- ⬭ $5 \times 10^{-12}$ grams
- ⬭ $5 \times 10^{-13}$ grams
- ⬭ $1.4 \times 10^{-12}$ grams
- ⬭ $1.4 \times 10^{-13}$ grams

**27** All of the triangles in this pattern are similar.

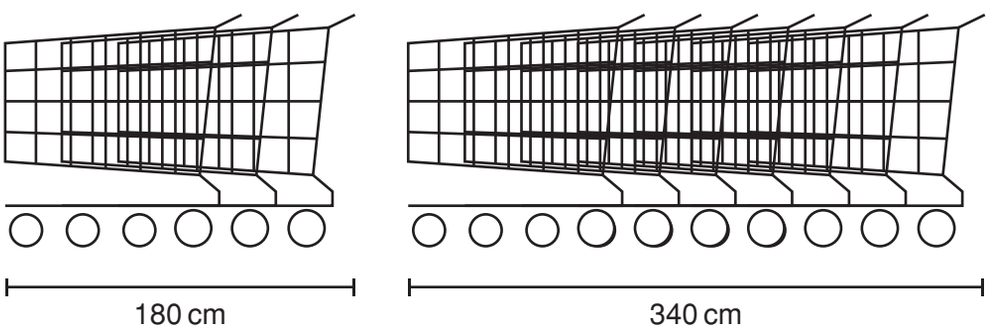



The bottom sides of the smallest and largest triangles form a straight line.

What is the size of the angle marked *a*?

_____ degrees

**28** Nick stacks shopping trolleys.




A stack of 3 trolleys has a length of 180 cm.
A stack of 7 trolleys has a length of 340 cm.

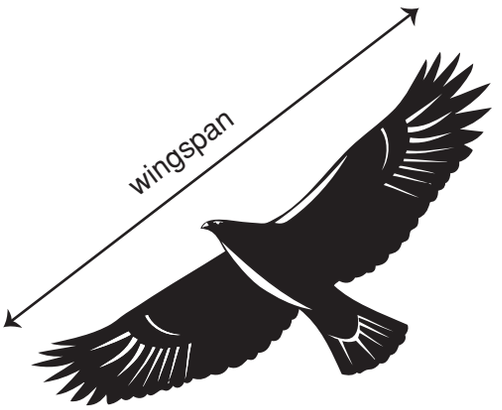
What is the length of a similar stack of 10 trolleys?

| 600 cm | 520 cm | 460 cm | 370 cm |
|---|---|---|---|
| ⬭ | ⬭ | ⬭ | ⬭ |

**29**

The mass of a wedge-tailed eagle is 5.76 kilograms.

Its wingspan is 2.32 metres.




A rule that can be used to approximately predict the wingspan of an eagle from its mass is

$w = \sqrt{m}$

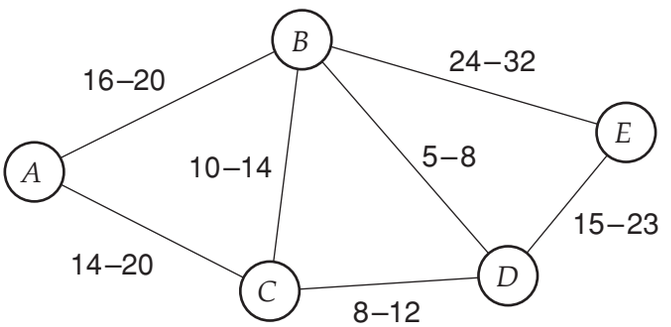
where $w$ is the wingspan in metres and $m$ is the mass in kilograms.
What is the difference in **centimetres** between the eagle's actual wingspan and the wingspan predicted by the rule?

_____ centimetres

**30**

The diagram shows the ranges of travel times between five places labelled $A$ to $E$.

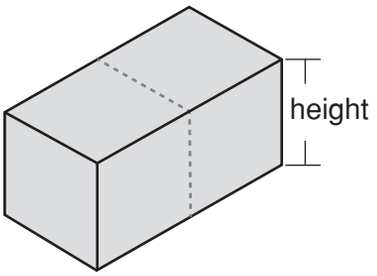
The times shown are in minutes.




What is the **shortest** possible travel time from $A$ to $E$?

_____ minutes

**31** Ali made a rectangular prism by joining two identical cubes as shown.

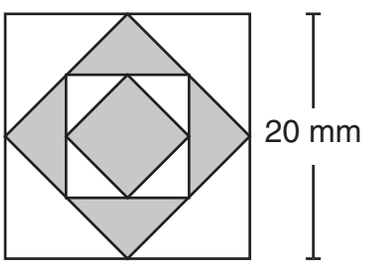



The volume of the prism is 686 cubic centimetres.

What is the height of the prism?

_____ centimetres

**32** In this pattern of squares each smaller square is half the area of the next biggest square.




What is the area of the **grey** part of the pattern?

_____ square millimetres

## STOP – END OF TEST

**Do not turn this page.**