NUMERACY NON-CALCULATOR



YEAR 9 2015

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LAST NAME:

STUDISTITIO (COMPLETE

Please print your first name and last name in the boxes below. Write in capital letters.

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NOTE TO TEACHER - RECORDING STUDENT PARTICIPATION AND DISABILITY ADJUSTMENTS

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SESSION 2

40 min

Time available for students to complete test: 40 minutes

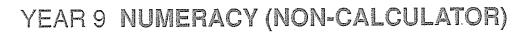
Use 2B pencil only



Australian Curriculum, Assessment and Reporting Authority, 2015









This table shows a pattern. The top and bottom numbers are connected by a rule.

Top number	1	2	3	4		
Bottom number	3	6	9	12	*****	27

What is the top number when the bottom number is 27?

5

9

15

19

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 \bigcirc

Luca had a \$10 voucher to spend on games for his smartphone.

He bought three games at \$1.99 each.

Which expression shows how much he has left to spend?

\$10 − \$1.99

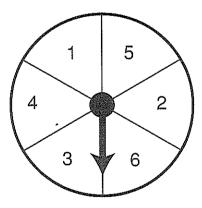
\$10 − (3 × \$1.99)

\$10 - \$1.99 + \$1.99 + \$1.99

 $3 \times (\$10 - \$1.99)$

This spinner is spun twice.

The two numbers that the arrow lands on are added.



Which of these totals is most likely to occur?

7

10

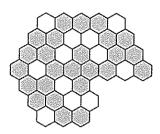
11

12

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Some tiles are missing from this pattern of tiles.



When complete the pattern has two lines of symmetry. Which of these could be the missing part of the pattern?

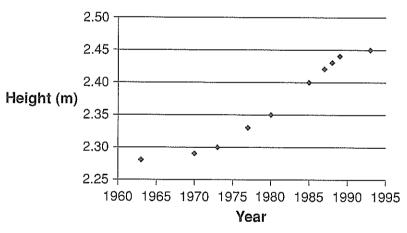








5 This graph shows the history of the men's high jump world record.



By about how many centimetres did the world record increase between 1970 and 1985?

9

11

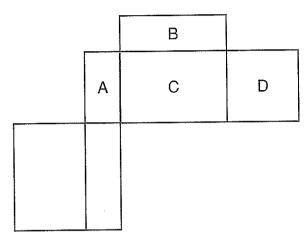
15

17

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Brad was trying to draw a net of a rectangular prism.



He drew one face of the prism incorrectly.

Which face did he draw incorrectly?

- A
- R
- C
- D

- \bigcirc
- _
- ژن ک

 $5 \times 2^3 =$

- 30
- 40
- 115
- 1000

- \bigcirc
- \bigcirc
- \circ

8 (10) = 6

What is the value of \nearrow ?

- 0
- 1
- 2
- 3
- 4

 \circ

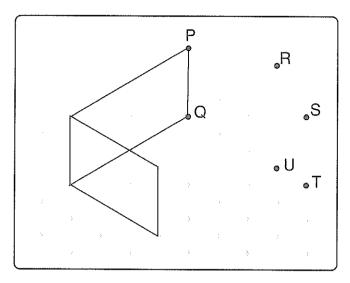
15

 \bigcirc





Ann was drawing a rectangular prism on an isometric grid. 9



Which pair of points should she join with a line?

P and R

P and S

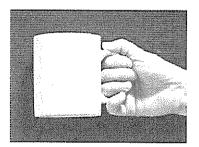
 \bigcirc

Q and U

Q and T

 \bigcirc

10



What is the best estimate for the capacity of this mug?

0.30 litres

3.0 litres

90 millilitres

900 millilitres

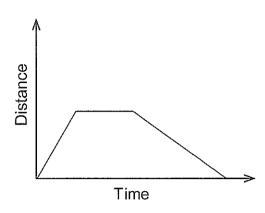
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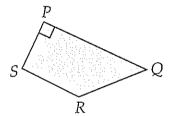
11



Which of the following stories best fits the graph above?

- Melanie drove north-east, did some shopping and drove back home.
- Melanie walked uphill, had a rest and ran downhill.
- Melanie ran to the park, rested for a while and then walked home.
- Melanie walked to the beach, had a swim and then ran back home.

12



Which of these properties makes PQRS a trapezium?

- ☐ Line *PS* is perpendicular to line *PQ*.
- \bigcirc Line QR is parallel to line SR.
- Line PR is perpendicular to line SQ.
- lacktriangleq Line PQ is parallel to line SR.

13

Which expression is equal to 5x - 2 + 3x + 6?

12x

8x + 4

8x - 8

3x + 9

 \bigcirc

 \bigcirc



Ben and Lee were playing a game.

They both started with zero points.

Ben's final score was 240 points. Lee's final score was -60.

How many more points did Ben have than Lee?

$$-300$$

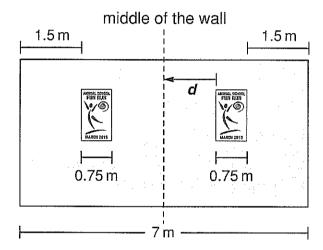
$$-180$$

 \bigcirc

\circ

$$\bigcirc$$

Sanjeet put two identical posters on his wall as shown.



What is the distance d from the edge of each poster to the middle of the wall?

$$2.25 \, \text{m}$$

$$2 \, \mathrm{m}$$

1	_)

$$\bigcirc$$



$$\bigcirc$$

\circ

Stuart made a phone call that lasted 59 minutes.

The cost per minute for the phone call was \$0.89.

Stuart estimated that the total cost of the phone call was about \$54.

Stuart's estimate was

- less than the actual cost.
- equal to the actual cost.
- more than the actual cost.



Which of these is the closest to 0?

1.001

0.01

-0.1

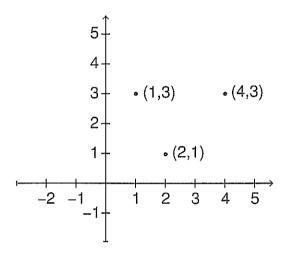
-0.001

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 \bigcirc

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Rani draws and labels 3 points, as shown below.



She wants to add another point so that all 4 points can be joined to make a parallelogram.

Which of these is a possible coordinate for the 4th point?

(-1, 1)

(1, 4)

(1, -1)

(4, 1)

 \circ

 \circ

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Nick works in a factory packing chocolates into boxes.

He packs one box at a time.

Each box contains 5 milk chocolates, 3 dark chocolates and 2 white chocolates.

8

Every hour Nick packs a total of 300 chocolates.

How many dark chocolates does he pack every hour?

90





A standard six-sided dice is rolled once. 20

What is the probability that the number on the top face is a factor of 6?

$$\frac{1}{6}$$

$$\frac{1}{3}$$

$$\frac{1}{2}$$

$$\frac{2}{3}$$

$$\subset$$

$$\bigcirc$$

Simplify: $\frac{2^3 \times 5^2 \times 3^4}{3 \times 3^3 \times 5 \times 2^2}$ 21

$$\frac{4}{3}$$

$$\frac{1}{3}$$

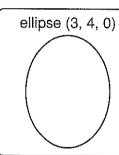


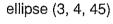
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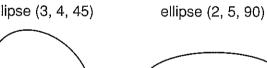
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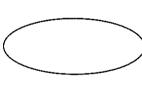
Sandra is using a computer program to draw shapes. 22

The picture shows three commands and the resulting shapes.

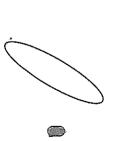








Which shape would be drawn by this command: ellipse (1, 4, 60)?











9



23 It takes 5 hours for 4 people to deliver leaflets to 1000 homes.

At the same rate, how many hours should it take for 5 people to deliver leaflets to 1500 homes?

6 hours

Tilly made a number pattern using this rule:

 $next\ number = previous\ number\ imes\ -\$

(and are whole numbers)

Her number pattern is:

2, 1, -1, -5, -13, ...

What is the next number in Tilly's pattern?

-29

-26

-25

-21

 \bigcirc

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In a group of Year 9 students, the ratio of boys to girls is 9:7.

There are 4 more boys than girls in this group.

How many students are in this group altogether?

16

18

20

32

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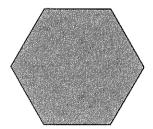
26 $\frac{x}{2} = \frac{3}{11}$

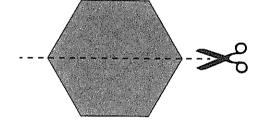
What is the value of x?

- $\frac{3}{22}$
- $\frac{6}{22}$
- $\frac{5}{11}$
- $\frac{6}{11}$

- 0
- 0

A regular hexagon has a perimeter of 12 cm. It is then cut in half.





What is the perimeter of each half of the hexagon?

- $5\,cm$
- 6 cm
- 8 cm
- 9 cm
- 10 cm

- \bigcirc
- \circ
- \circ
- \bigcirc

Lina drew a line with equation y = 3 - x on a grid.

She then drew another line on the same grid with this equation y = x - 1.

What are the coordinates of the intersection point of these two lines?

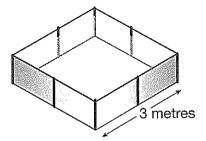
- (-1, 2)
- (1, 2)
- (2, -1)
- (2, 1)



29

A square pool for small children has sides which are 3 metres long.

One cubic metre can hold 1000 litres of water.



How many litres of water will fill the pool to a depth of 50 centimetres?

4500

litres

30

The area of a rectangle is 60 mm².

The side lengths are doubled to make a new rectangle.

What is the area of the new rectangle?

 30 mm^2

120 mm²

 $240 \, mm^2$

360 mm²

0



0

31

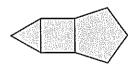
Holly created a shape using various regular polygons.

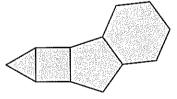
She began by using a triangle with a side length of 1 cm.

She then added regular polygons, each with one more side than the previous one.









She continued this way until a 10-sided polygon is added to her shape.

What will the perimeter of her whole shape be?

32

cm









32 Kumi is $\frac{3}{4}$ the height of Zac.

Sue is $\frac{2}{3}$ the height of Zac.

Kumi is 15 centimetres taller than Sue.

How tall is Zac in centimetres?

180

centimetres

STOP - END OF TEST





NUMERACY CALCULATOR ALLOWED



VEAR

FIRST NAME:

LAST NAME:

SCHOOL:

ST ALOYSIUS COLLEGE

SCHOOL CODE:

GENDER:

Male

Female

 \bigcirc

DATE OF BIRTH:

329033362-2

STUDIENT TO COMPLETE

Please print your first name and last name in the boxes below. Write in capital letters.

FIRSTINAME						
		4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Andrews and		
LAST NAME			!			
				-		

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SESSION 1

Time available for students to complete test: 40 minutes

Use 28 pencil enly



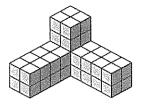
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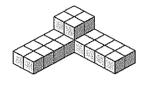


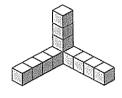
Brian made this 3D object using 48 small cubes.

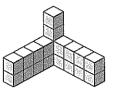


Which of these has a volume half that of Brian's object?









Which of these can be measured in litres?

area

2

mass

volume

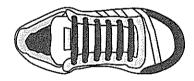
length

0

 \circ

 \bigcirc

This is Donna's left shoe.



Donna's right shoe is a mirror image of her left shoe.

Which of these is Donna's right shoe?









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 $y = 2x^2 - 8$

What is the value of y when x = 2.2?

- 6.32
- 0.8
- 1.68
- 11.36

- \bigcirc
- \bigcirc
- 0

The speed of sound at sea level is 340 metres per second.

What is the speed of sound in metres per minute?

- 34 000
- 20 400
- 5.7
- 3.4

- 0
- \bigcirc
- \circ

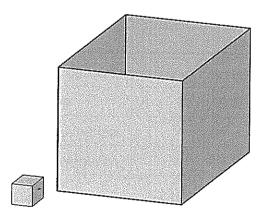
6 What is the value of $\frac{63.4 + 28.24}{9.2 \times 1.6}$ rounded to one decimal place?

- 6.2
- 15.9
- 24.5
- 68.3

- ١
- \bigcirc
- 0

A cardboard box is in the shape of a cube.

It is filled with identical small cubes of the size shown.



Which of these is the closest estimate for the number of cubes that would fill the box?

- 25
- 40
- 200
- 800

- \bigcirc

- $\overline{}$

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One billion is one thousand million.

Which of the following is 70 billion?

$$7 \times 10^{13}$$

$$7 \times 10^{10}$$

$$7 \times 10^{7}$$

$$7\times10^4$$

 \bigcirc

_	_
1	

$$\circ$$

There are 12 apples and 7 pears in a bowl.

About what percentage of the fruit in the bowl is pears?

 \bigcirc



$$\bigcirc$$

$$\bigcirc$$

Which one of these has the same value as 20^2 ?

$$40^2 \div 4$$

$$2 \times 2 \times 5 \times 2 \times 5$$

$$4 \times 5^{2}$$

$$2 \times 10 \times 10$$

 \circ

0

 \circ

A concert starts at 10:28 am and runs for 124 minutes.

What time does it finish?

11:52 am

11:52 pm

12:32 am

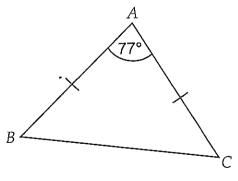
12:32 pm

 \bigcirc

 \bigcirc

 \circ

The diagram shows an isosceles triangle.



What is the size of the angle $\angle ABC$?

38.5°

45°

51.5°

60°

 \bigcirc

 \bigcirc

0

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The petrol gauge in Lyn's car showed that she had used half of the petrol in the tank. She then spent \$42 filling up her tank at a cost of \$1.35 per litre.

Approximately how much petrol can Lyn's petrol tank hold when it is full?

31 litres

57 litres

62 litres

84 litres

 \bigcirc

 \circ

Teagan and Caleb collected money for charity over a month.

If Caleb had collected \$10 more, he would have collected exactly twice as much as Teagan.

Which row of the table shows how much money they could have collected?

	Teagan	Caleb	
0	\$15	\$30	
\circ	\$20	\$50	
	\$25	\$40	

\$30

15

Continent	Number of cars produced				
Africa	636 519				
Asia/Oceania	45 800 878				
Europe	19 726 405				
North America	21 136 313				
South America	4 288 654				

\$80

How many **more** cars were produced in North and South America than in Europe and Africa?

5 062 043

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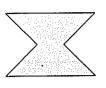






Mia drew a shape. It had only one pair of parallel sides and only one internal reflex angle.

Which of these could be Mia's shape?









0

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Simon is facing west. He turns 135° clockwise.

Simon then turns anticlockwise until he faces east.

By how many degrees did Simon turn anticlockwise?

45°

180°

225°

315°

 \bigcirc

 \bigcirc

0

The equation 2y + 1 = x is rearranged to have y as the subject.

Which of these correctly gives *y* as the subject?

$$y = \frac{x-1}{2}$$

$$y = \frac{x+1}{2}$$

$$y = 2x - 1$$

$$y = 2x + 1$$

 \bigcirc

 \bigcirc

Which of the following has the same value as 13^{-13} ?

$$-13^{-13}$$

$$\frac{1}{-13^{13}}$$

$$\frac{1}{13^{13}}$$

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The rule for calculating the price to deliver a parcel of mass m kg is price (\$) = 7 + 3.5m.

What is the mass, in kg, of a parcel with a delivery price of \$70?

13

18

22

27

252

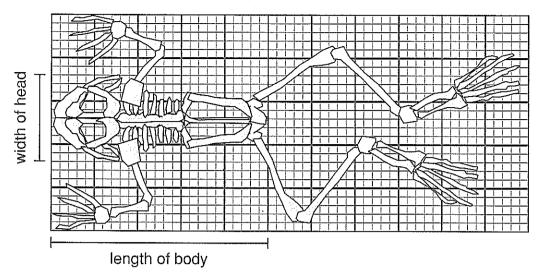
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 \bigcirc

 \bigcirc

21

David drew this diagram of a frog's skeleton.



The actual length of the frog's body is 100 millimetres.

What is the actual width of the frog's head?

20

millimetres

22

This sand timer contains 595 g of sand.

It takes half an hour for all of the sand to flow through the timer.

Each millilitre of sand weighs 1.6 g.



How many millilitres of sand flow through the timer per minute?

12.4

19.8

31.7

743.8

 \cup

 \circ

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Sarah was collecting money for charity.

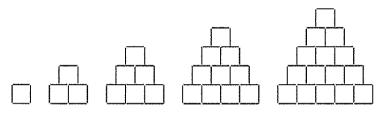
By Sunday night she had collected 55% of her target amount.

On Monday she collected another \$70, which meant she had now collected 75% of her target amount.

What was Sarah's target amount?

\$ 350.00

Kim uses sticks to make a pattern of squares.



Number of squares	1	3	6	10	15
Number of sticks	4	10	18	28	40

When a shape consists of 28 squares, how many sticks will the shape have?

70

The total length of all edges of a cube is 156 cm.

What is the volume of the cube?

2197

 cm^3

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Which statement is always true?

- The opposite angles of a kite are equal in size.
- The opposite sides of a trapezium are equal in length.
- The diagonals of a parallelogram are equal in length.
- The angles formed by the intersection of the diagonals of a rhombus are equal in size.

A new power drill was on sale with 15% discount.

As a regular customer, Peter received a further 10% on the already discounted price.

What was the overall percentage discount Peter received?

1.5%

12.5%

16.5%

23.5%

25%

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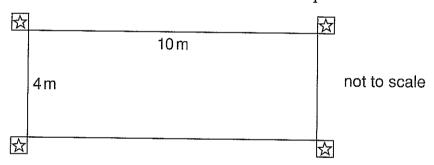
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The edges of Greg's swimming pool form a $10 \text{ m} \times 4 \text{ m}$ rectangle.

He tiled around the edges of his pool using one row of $400 \text{ mm} \times 400 \text{ mm}$ tiles.

Greg put one star tile at each corner of the pool as shown.



He used an equal number of black and white tiles to finish off the edges.

The table shows the price of each kind of tile.

Tile	☆		
Price	\$15	\$10	\$7

What was the total cost of the tiles he used?

\$ 550

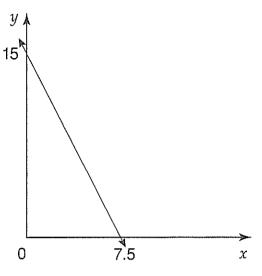
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29



Which of these equations represents the line in the graph?

$$y = 15 - 2x$$

$$y = 15 + 7.5x$$

$$y = 15 - 7.5x$$

$$y = 15 + 2x$$

 \bigcirc

 \bigcirc



30

In the diagram AB is a straight line.

A x°B

What is the size of the angle marked x° ?

120

10

degrees

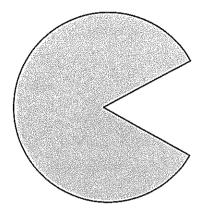
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The product of three different whole numbers is 60.
What is the largest possible sum of the three numbers?

20

This shape was formed by removing a sector from a circle of radius 9 cm.



The area of the sector was $\frac{1}{6}$ of the area of the circle. What is the perimeter of the shape, to the nearest centimetre?

2 mg

cm

STOP - END OF TEST

Do not turn this page.

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