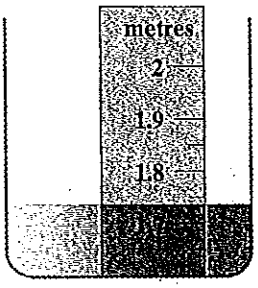
Year 7 Numeracy Sample Test 3

40 MIN

Non-calculator

Question 1



This rule measures the depth of liquid in a vat. How deep is the liquid?

Circle the correct answer.

A 184 cm **B** 186 cm **C** 176 cm **D** 174 cm

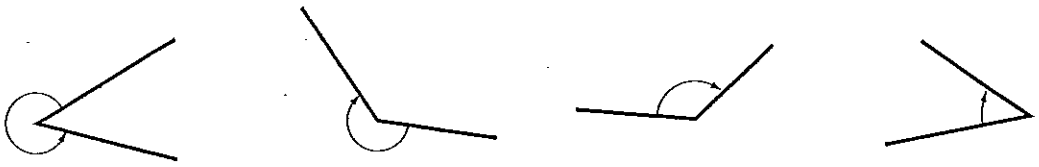
Question 2

Which one of these does **not** have the same value as 9×4?

A 18×2 **B** 6×6 **C** 3×12 **D** 5×8

Question 3

Which of the marked angles is obtuse?



A **B** **C** **D**

Question 4

4.8, 4.75, 4.7, 4.65, ...

What is the rule for this pattern?

A decrease by 0.5 **B** decrease by 0.05

C increase by 0.5 **D** increase by 0.05

YEAR 7 NUMERACY SAMPLE TEST 3—NON-CALCULATOR

Question 5

The population of a country is 3582517. What is this population to the nearest thousand?

A 4000000 **B** 3600000 **C** 3582000 **D** 3583000

Question 6

Which dotted line is a line of symmetry?

A **B** **C** **D**

Question 7

Peggy's pegs come in a packet of 50. 30 pegs are yellow and the rest are red. If you took one peg from the packet, without looking, what is the chance that it is red?

A 2 in 3 **B** 2 in 5 **C** 3 in 5 **D** 1 in 3

Question 8

How many hours and minutes are between 8:32 am and 5:17 pm on the same day?

A 8 h 45 min **B** 8 h 15 min **C** 9 h 45 min **D** 9 h 15 min

Question 9

1 tonne and 200 kilograms is the same as

A 1.2 t **B** 1.02 t **C** 1000200 kg **D** 10200 kg

Question 10

$(8 \times 1000) + (3 \times 10) + 5 = ?$

A 8350 **B** 8305 **C** 8035 **D** 835

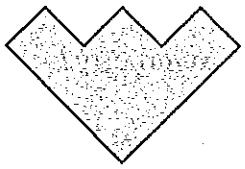
Question 11

Which number is less than 0.06?

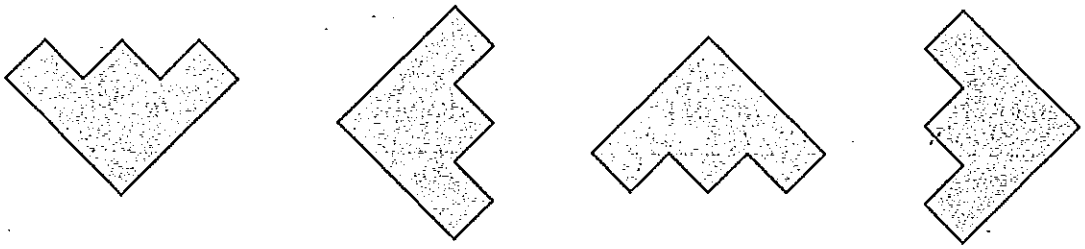
A 0.09 **B** 0.13 **C** 0.104 **D** 0.0078

Question 12

Toby drew this shape.



What will it look like after a three-quarter turn in an anticlockwise direction?



A **B** **C** **D**

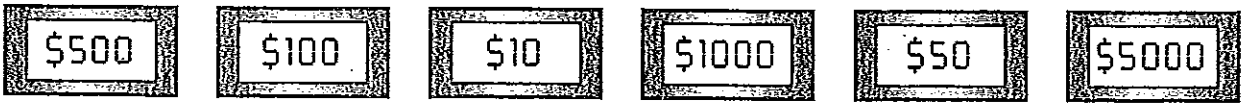
Question 13

One-fifth of the mass of a bale of hay is 120 kg. What is the mass of the full bale?

Write your answer in the box. ☐ kg

Question 14

As a prize on a game show, Zara has to choose one box from six, each of which holds a cash amount.

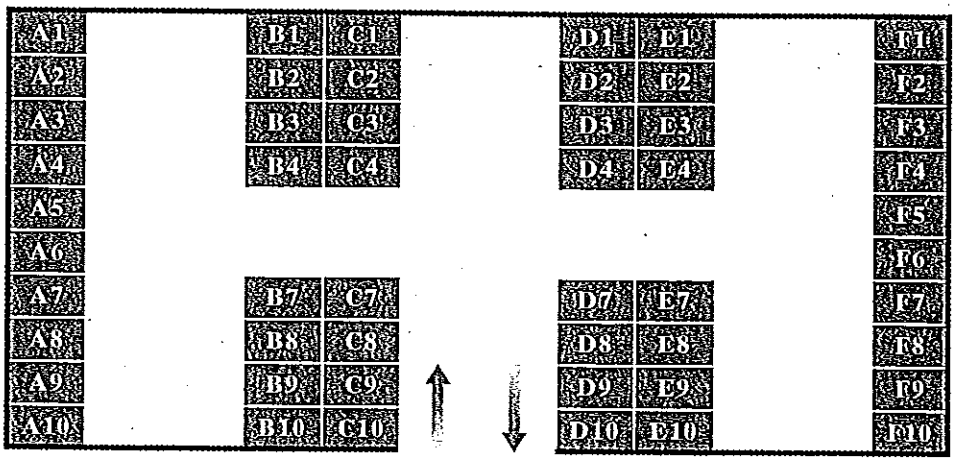


Which would describe the chance that Zara will choose an amount greater than $1000?

A likely **B** unlikely **C** fifty-fifty **D** certain

Question 15

Rudi drives into the car park. He takes a turn to the right and then turns left. He then parks in the second space on his left.



In which space does Rudi park?

A A3 **B** B6 **C** E3 **D** F8

Question 16

$32 \times 85 = 2720$

What is 3.2×0.85?

A 27.2 **B** 2.72 **C** 0.272 **D** 0.0272

Question 17

The temperature at 10 pm was −9°C. At 6 am the next morning it was 12°C colder. What was the temperature at 6 am?

A 21°C **B** 3°C **C** −3°C **D** −21°C

Question 18

A pattern is formed using the rule: 'Halve the previous number and then subtract 1'. The first number in the pattern is 38. What is the fourth number?

A 3 **B** 5 **C** 8 **D** 18

Question 19

Jianguo recorded the number of laps of the oval he ran each afternoon after school.

Day	Number of laps
Monday	2
Tuesday	4
Wednesday	5
Thursday	6
Friday	3

What was the mean number of laps per day?

A 2 B 3 C 4 D 5

Question 20

A mattress had a marked price of $800. Vera bought the mattress in a sale where the shop gave 20% off the marked price. How much did she pay?

A $600 B $640 C $720 D $780

Question 21

Jono's juice comes in four different sizes: small (600 mL), medium (1.5 L), large and jumbo (4.5 L). The capacity of the large size is halfway between that of the medium and the jumbo sizes. How much greater is the capacity of the large size than the small size?

Write your answer in the box. ☐ L

Question 22

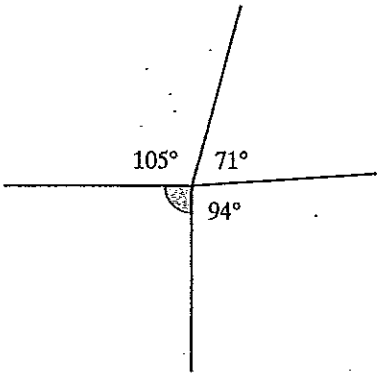
The perimeter of a square is 36 metres. What is the area of the square?

Write your answer in the box. ☐ m^2

YEAR 7 NUMERACY SAMPLE TEST 3—NON-CALCULATOR

Question 23

What type of angle is the shaded angle?



(not to scale)

A right **B** acute **C** obtuse **D** reflex

Question 24

Tayla left home at 8:35 am and drove 280 km. She arrived at 12:35 pm. What was her average speed?

Write your answer in the box. ☐ km/h

Question 25

250 children were asked whether or not they walked to school. The table shows some of the results.

	Walked	Did not walk
Boys	73	52
Girls		64

How many girls walked to school?

Write your answer in the box. ☐

Question 26

In a group of 32 people, 20 are male. What is the ratio of females to males?

A 3 to 5 **B** 5 to 8 **C** 3 to 8 **D** 5 to 3

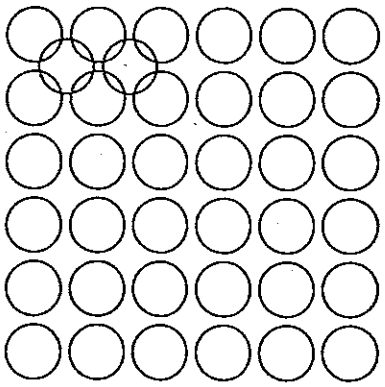
Question 27

What is the next number in this pattern?

$\frac{1}{12}, \frac{1}{6}, \frac{1}{4}, \frac{1}{3}, \ldots$

A $\frac{1}{2}$ **B** $\frac{3}{8}$ **C** $\frac{5}{12}$ **D** $\frac{1}{5}$

Question 28



Paul is stacking cans in a display at the shop where he works. He places 6 cans across the length and 6 cans across the width at the bottom of the display, then places a second row so that each can rests on four others beneath it as shown in the diagram.

If Paul continues to stack cans in this way, adding extra rows as he goes, how many cans in total can he place in the stack?

Write your answer in the box.

Question 29

When it is 8:30 am in Brisbane, it is 2:30 pm the previous day in Los Angeles. What time is it in Brisbane when it is 8:30 am Monday in Los Angeles?

A 2:30 am Tuesday

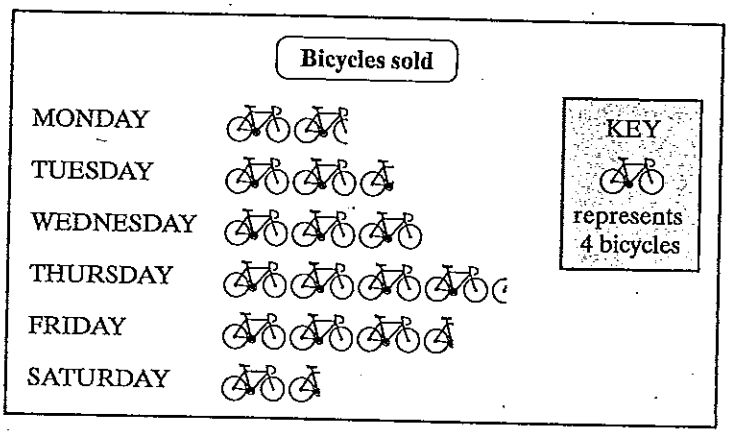
B 2:30 pm Sunday

C 2:30 am Monday

D 2:30 pm Monday

Question 30

The number of bicycles sold by a shop in a week is shown in the graph.



Which statement is correct?

A There were 19 bicycles sold on Thursday.

B There were 2 more bicycles sold on Friday than on Saturday.

C There were 2 fewer bicycles sold on Wednesday than on Tuesday.

D There were twice as many bicycles sold on Friday than on Monday.

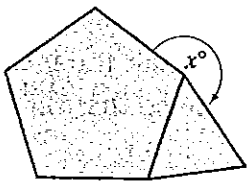
Question 31

Eason made a rectangular prism from identical cubes. The prism is 4 cubes long, 3 wide and 2 high. He painted all six faces of the prism and then broke the prism up into the individual cubes. What fraction of the cubes have just one face painted?

A $\frac{1}{12}$ **B** $\frac{1}{8}$ **C** $\frac{1}{6}$ **D** $\frac{1}{3}$

Question 32

The diagram shows a regular pentagon and an equilateral triangle.



What is the value of x?

Write your answer in the box.

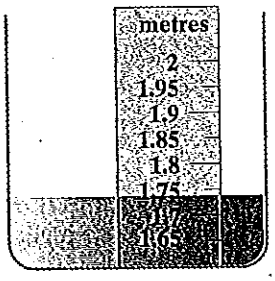
END OF TEST 3

YEAR 7 **Numeracy Sample Test 3**

Pages 52–59

1 **D** (Basic level)	17 **D** (Advanced level)
2 **D** (Basic level)	18 **A** (Advanced level)
3 **C** (Intermediate level)	19 **C** (Intermediate level)
4 **B** (Basic level)	20 **B** (Intermediate level)
5 **D** (Basic level)	21 **2.4 L** (Advanced level)
6 **C** (Intermediate level)	22 **81 m²** (Advanced level)
7 **B** (Intermediate level)	23 **A** (Intermediate level)
8 **A** (Intermediate level)	24 **70 km/h** (Intermediate level)
9 **A** (Intermediate level)	25 **61** (Intermediate level)
10 **C** (Basic level)	26 **A** (Intermediate level)
11 **D** (Intermediate level)	27 **C** (Advanced level)
12 **B** (Basic level)	28 **91** (Advanced level)
13 **600 kg** (Intermediate level)	29 **A** (Advanced level)
14 **B** (Basic level)	30 **D** (Intermediate level)
15 **C** (Intermediate level)	31 **C** (Advanced level)
16 **B** (Advanced level)	32 **192** (Advanced level)

1 The depth of water is less than 1.75 m.
Of the options, the depth must be 1.74 m or 174 cm.



2 $9 \times 4 = 36$
Try each of the options:
$18 \times 2 = 36$
$6 \times 6 = 36$
$3 \times 12 = 36$
$5 \times 8 = 40$
The expression that is not equal to 9×4 is 5×8.

3 An obtuse angle measures more than 90° but less than 180°. The obtuse angle is C.

[A and B are reflex angles, D is acute.]

4 4.8, 4.75, 4.7, 4.65, ...
$4.8 - 4.75 = 0.05$

$$\begin{array}{r} 4.7\overset{1}{8}\overset{1}{0} \\ -\ 4.7\ 5 \\ \hline 0.0\ 5 \end{array}$$

$4.75 - 4.7 = 0.05$

$$\begin{array}{r} 4.75 \\ -\ 4.70 \\ \hline 0.05 \end{array}$$

$4.7 - 4.65 = 0.05$
The rule is to decrease by 0.05.

5 3 582 517 is between 3 582 000 and 3 583 000. It is closer to 3 583 000.
So the population is 3 583 000 to the nearest thousand.
[Option A (4 000 000) is the population rounded to the nearest million.
Option B (3 600 000) is the population rounded to the nearest hundred thousand.]

6 The only shape that will look exactly the same when folded along the dotted line is A in option C.

7 Number of red pegs = 50 − 30
= 20
Chance of choosing a red peg = 20 in 50
= 2 in 5

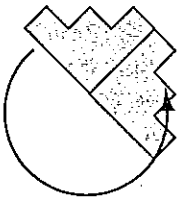
8 From 8:32 am until 9:00 am is 28 minutes.
From 9:00 am until 9:17 am is 17 minutes.
So from 8:32 am until 9:17 am is 28 + 17 minutes or 45 minutes.
From 9:17 am until 5:17 pm is 8 hours.
So from 8:32 am until 5:17 pm is 8 h 45 min.

9 1 tonne = 1000 kilograms
So 1 tonne + 200 kg = (1000 + 200) kg
= 1200 kg
= 1.2 t

10 $(8 \times 1000) + (3 \times 10) + 5$
$= 8000 + 30 + 5$
$= 8035$
[There are no hundreds.]

11 Write each decimal with the same number of places after the decimal point.
0.0900, 0.1300, 0.1040, 0.0078
Now 0.06 is the same as 0.0600.
The number that is less than 0.06 is 0.0078.

12 The shape turns through 270° in an anticlockwise direction.

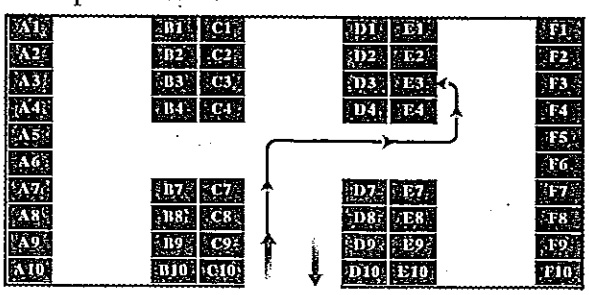


The resulting shape is B.

13 One-fifth is 120 kg.
The whole = 5 × 120 kg
= 600 kg

14 Only one box out of six holds more than $1000. So the chance of choosing that box is one in six. It is unlikely to occur.

15 Rudi parks in E3.



16 $32 \times 85 = 2720$
So $3.2 \times 0.85 = 2.720$
[There are 3 places after the decimal point in the question so there must be 3 places in the answer.]
$3.2 \times 0.85 = 2.72$

17 The temperature was 9 degrees below freezing point. If it becomes 12 degrees colder it will be another 12 degrees further below freezing point.
Now $12 + 9 = 21$
So the temperature will be 21 degrees below freezing point or -21°C.

18 The first number = 38
The second number $= 38 \div 2 - 1$
$= 19 - 1$
$= 18$
The third number $= 18 \div 2 - 1$
$= 9 - 1$
$= 8$
The fourth number $= 8 \div 2 - 1$
$= 4 - 1$
$= 3$

19

Day	Number of laps
Monday	2
Tuesday	4
Wednesday	5
Thursday	6
Friday	3

Total laps $= 2 + 4 + 5 + 6 + 3$
$= 20$
Mean number of laps $= 20 \div 5$
$= 4$

20 Saving = 20% of \$800
Now 10% of \$800 is \$80.
So 20% of \$800 $= 2 \times$ \$80
= \$160
Price paid = \$800 − \$160
= \$640

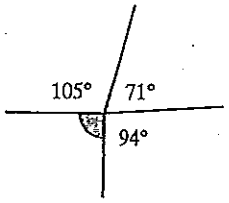
21 The capacity of the large size is halfway between 1.5 litres and 4.5 litres.
Capacity of large size $= \frac{1.5 + 4.5}{2}$ L
$= \frac{6}{2}$ L
$= 3$ L
Capacity of small size = 600 mL
= 0.6 L
Difference = (3 − 0.6) L
= 2.4 L

$$\begin{array}{r} {}^{2}\not{3}.{}^{1}0 \\ -\ 0.6 \\ \hline 2.4 \end{array}$$

The capacity of the large size is 2.4 litres more than that of the small size.

22 The 4 sides of the square total 36 metres.
Each side $= 36 \text{ m} \div 4$
$= 9$ m
Area $= 9 \text{ m} \times 9 \text{ m}$
$= 81 \text{ m}^2$

23 Angles at a point add to 360°.
Now $105° + 71° + 94° = 270°$
Remaining angle $= 360° - 270°$
$= 90°$



So the shaded angle must be a right angle.

24 Distance = 280 km
From 8:35 am until 12:35 pm is 4 hours.
Speed $= 280 \text{ km} \div 4 \text{ h}$
$= 70$ km/h

25 There were 250 children altogether.

	Walked	Did not walk
Boys	73	52
Girls		64

Number in table $= 73 + 52 + 64$
$= 189$
Number remaining $= 250 - 189$
$= 61$
The number of girls who walked is 61.

26 Number of females $= 32 - 20$
$= 12$
Ratio of females to males = 12 to 20
= 3 to 5

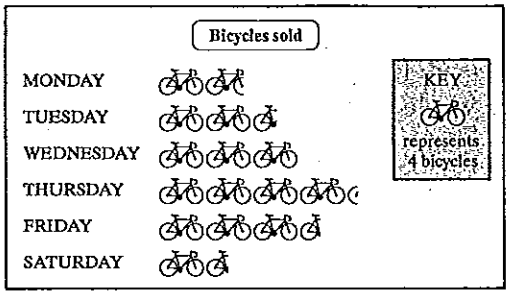
27 $\frac{1}{12}, \frac{1}{6}, \frac{1}{4}, \frac{1}{3}, \cdots$
[Change all the fractions to equivalent fractions with the same denominator, 12.]
$\frac{1}{6} = \frac{2}{12}$ (after multiplying numerator and denominator by 2)
$\frac{1}{4} = \frac{3}{12}$ (after multiplying numerator and denominator by 3)
$\frac{1}{3} = \frac{4}{12}$ (after multiplying numerator and denominator by 4)
$\frac{1}{12}, \frac{2}{12}, \frac{3}{12}, \frac{4}{12}, \cdots$
The next number in the pattern is $\frac{5}{12}$.

28 Number of cans in bottom row $= 6 \times 6$
$= 36$
The second bottom row will have 5 cans each way.
Number of cans in second bottom row
$= 5 \times 5$
$= 25$
There will be 4×4 or 16 cans in the next row.
There will be 3×3 or 9 cans in the next row.
There will be 2×2 or 4 cans in the next row.
There will be just 1 can in the top row.
Total cans $= 36 + 25 + 16 + 9 + 4 + 1$
$= 91$

29 From 2:30 pm one day until 8:30 am the next day is 18 hours.
So Brisbane time is 18 hours ahead of Los Angeles time.

18 hours after 8:30 am Monday is 2:30 am Tuesday.

30 Each symbol represents 4 bicycles sold.
One-quarter of a symbol will represent 1 bicycle, half a symbol will represent 2 bicycles and three-quarters of a symbol will represent 3 bicycles.



Consider each option.

'There were 19 bicycles sold on Thursday.'

There are 4 and a quarter symbols on Thursday. This represents $4 \times 4 + 1$ or 17 bicycles. This statement is not correct.

'There were 2 more bicycles sold on Friday than on Saturday.'

There are 2 more symbols on Friday than on Saturday but this represents 8 bicycles.

This statement is not correct.

'There were 2 fewer bicycles sold on Wednesday than on Tuesday.'

There were 2 more bicycles sold on Wednesday not 2 fewer.

This statement is not correct.

'There were twice as many bicycles sold on Friday than on Monday.'

On Friday there are $3\frac{1}{2}$ symbols.

Number of bicycles sold on Friday
$= 3 \times 4 + 2$
$= 14$

On Monday there are $1\frac{3}{4}$ symbols.

Number of bicycles sold on Monday $= 4 + 3$
$= 7$

Now $14 = 2 \times 7$

So this statement is correct.

The correct statement is 'There were twice as many bicycles sold on Friday than on Monday.'

31 Number of cubes $= 4 \times 3 \times 2$
$= 24$

Now 2 in the middle of the top layer and 2 in the middle of the bottom layer will have just one face painted. All the rest will have more than one face painted.

Number with one face painted $= 4$

Fraction with one face painted $= \frac{4}{24}$
$= \frac{1}{6}$

32 A regular pentagon has 5 equal angles.

Angle sum $= (5 - 2) \times 180°$
$= 3 \times 180°$
$= 540°$

Each angle $= 540° \div 5$
$= 108°$

An equilateral triangle has angles of 60°.

Now angles at a point add to 360°.

Sum of known angles $= 108° + 60°$
$= 168°$

$x = 360 - 168$
$= 192$