

National Numeracy Tests

PROCEDURAL

9EP17

First name _____

Last name _____

School _____

Class _____

Date of birth ○○ ○○ ○○○○

Date of test ○○ ○○ 2017

Total score (maximum 36)

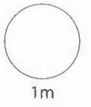


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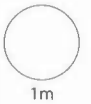
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- 1 Write $\frac{3}{4}$ as a decimal.

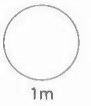


2

$$1000 - 142 =$$



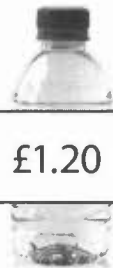
$$13 \times 11 =$$



3



£2.50



£1.20

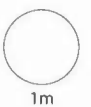


£0.60

Or buy all three together for £3

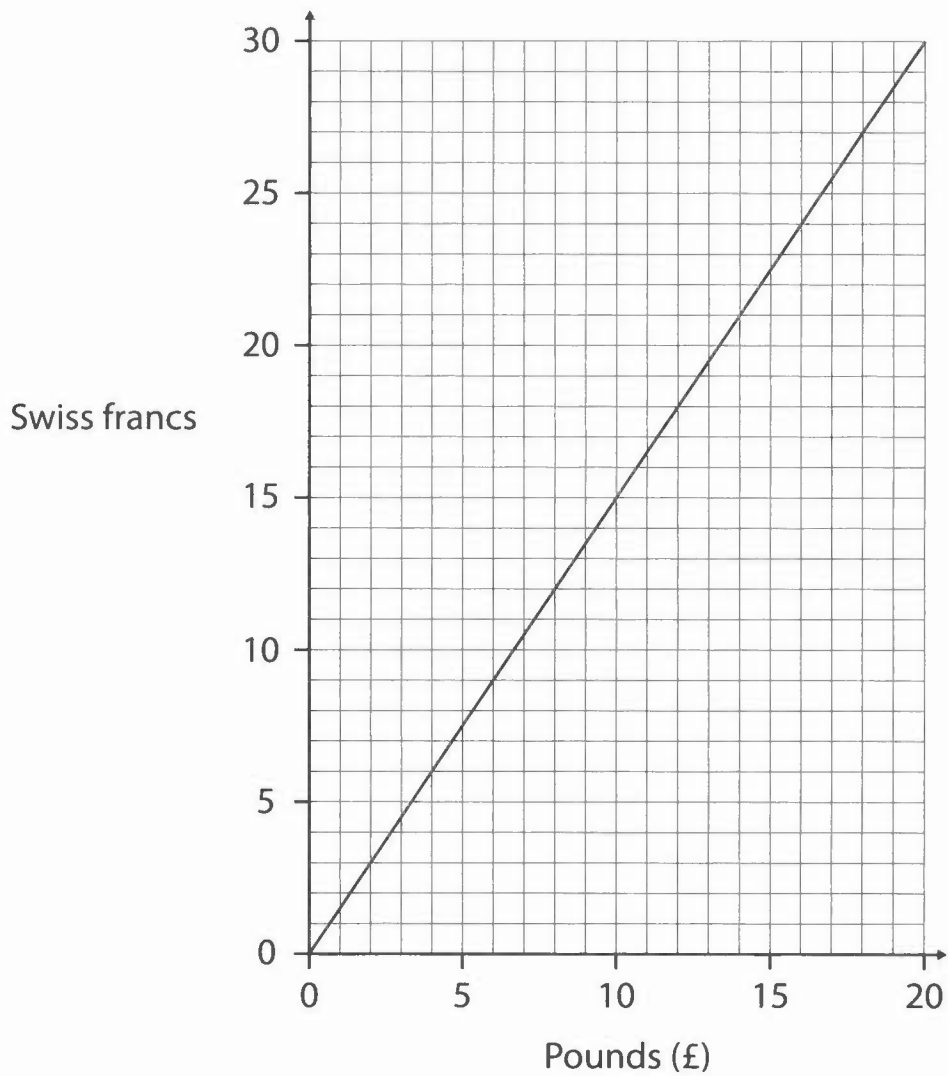
How much **cheaper** is it to buy all three together than to buy them separately?

£ cheaper



4

Exchange rate graph



15 Swiss francs = £

£25 = Swiss francs

1m

1m

5 Write 12 out of 60 as a percentage.

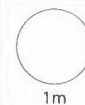
%

1m

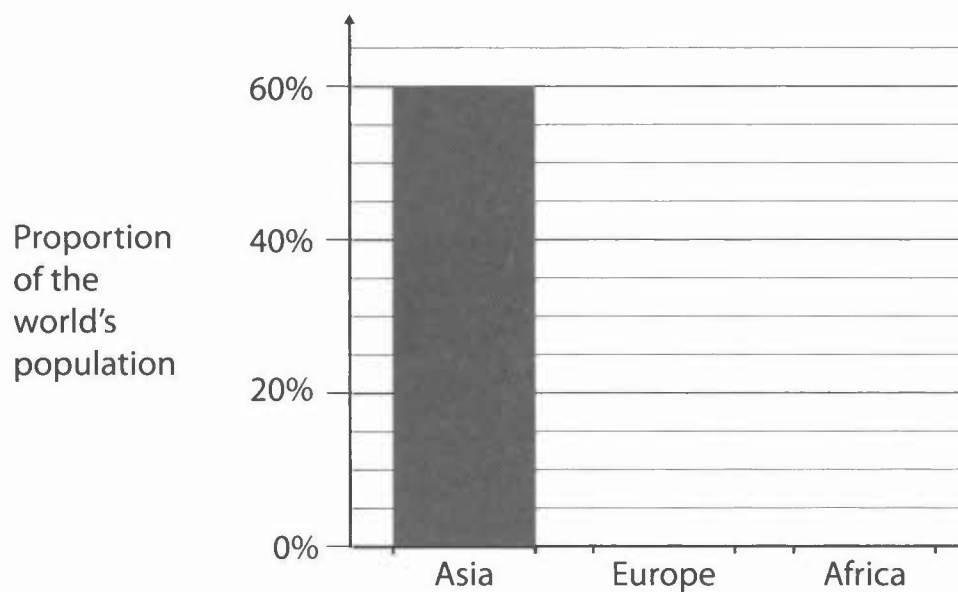
- 6 A map uses a scale of 1 centimetre to 100 metres.

How many centimetres on the map represent a distance of 1 kilometre?

centimetres



- 7 Bar chart to compare the populations of Asia, Europe and Africa



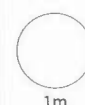
The ratio of populations of **Asia : Europe** is about 6 : 1

Draw the bar for Europe on the chart.



The ratio of populations of **Europe : Africa** is about 2 : 3

Draw the bar for Africa on the chart.




8

Two-way table to show the number of Welsh speakers in an office

	Number of females	Number of males
Welsh speaker	34	26
Not a Welsh speaker	19	21

What fraction of these people are Welsh speakers?

Write your answer in its simplest form.



2m

9

$4^3 =$

1m

The cube root of 1000 =

1m

10

Multiply $\frac{2}{3}$ by 5

Write your answer as a mixed number.

1m

TOTAL

8m

11

**Rent a car**

Small car £14.95 per day

Medium car £18.99 per day

Alun wants to rent a medium car for 5 days.

To the **nearest £**, how much would he save by renting a small car?

£

1m

12

$$0.2 \times 0.2 =$$

1m

$$8 \div 0.8 =$$

1m

13

A scatter diagram shows that one variable **increases** as the other **decreases**.

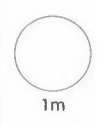
What type of correlation is this?

correlation

1m

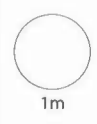
- 14 Tariq buys 100 shares at 500p per share.
After one year he sells them all at 450p per share.
In total, how much money has Tariq lost?

£

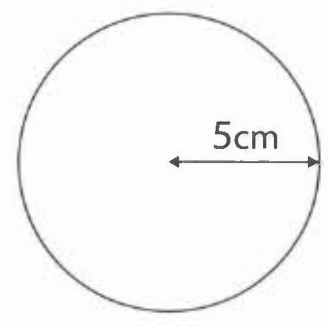


- 15 Write the missing number in this statement about a circle.

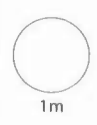
Diameter = × radius



Underline the calculation below that shows the **circumference** of this circle.

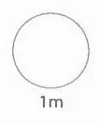


- $5 \times \pi$
- $10 \times \pi$
- $25 \times \pi$
- $100 \times \pi$



- 16 Chile is a country in South America.
In Chile people use money called pesos.

£1.25 = 1000 pesos so £5 = pesos



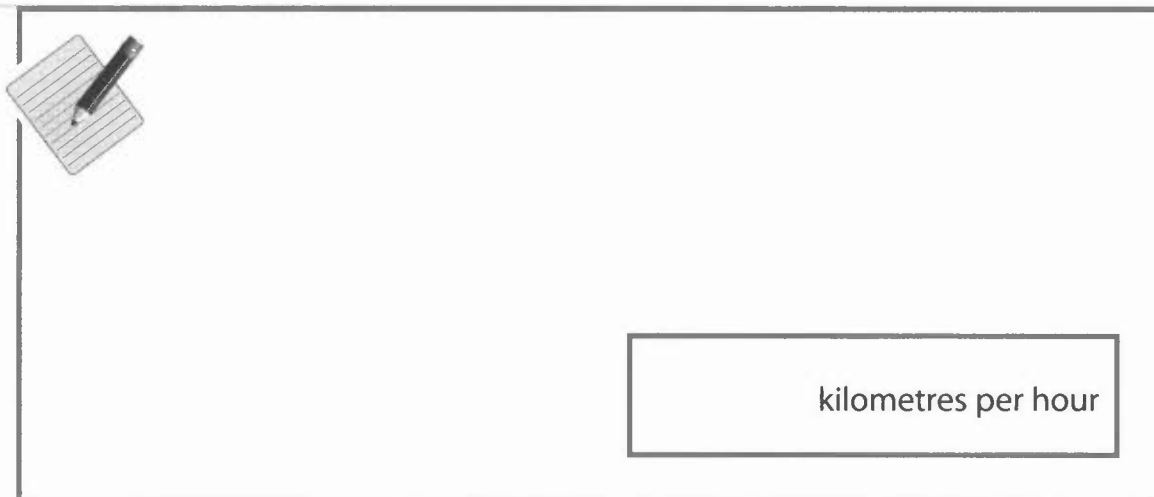
TOTAL



- 17** In 1919 a plane flew across the Atlantic for the first time.

It flew 3040 kilometres in 16 hours.

What was its average speed?



kilometres per hour



2m

- 18** Cerys is an architect.

She uses the scale 1 : 50 when drawing plans.

A wall will be 6 metres long.

What length, in centimetres, should it be on the plan?

centimetres



1m

- 19** Circle the number below that is equivalent to 1000×1000

10^9

10^8

10^7

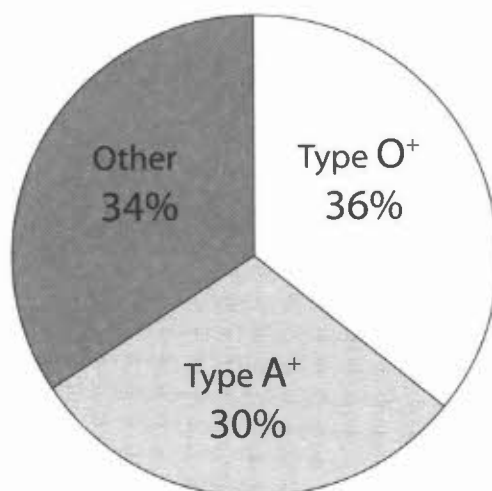
10^6

10^5



1m

- 20 The pie chart shows the most common blood types of donors in the UK.



In a random sample of 500 donors in the UK, how many would you expect to be type O⁺?

donors

1m

21

1 stone = 14 pounds

7 stones = pounds

1m

22

30 is increased to 50

To the **nearest 1%**, what is the **percentage increase**?

%

1m

TOTAL

7m

- 23 Circle all the calculations below that have the same answer as 15% of 28

$$0.15 \div 28$$

$$15 \div 100 \times 28$$

$$0.15 \times 28$$

$$100 \div 15 \times 28$$

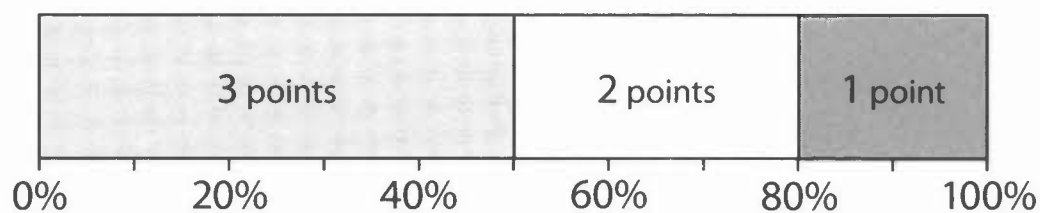


1m

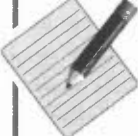
- 24 In a survey 100 people were asked how much they liked a new drink.

They gave a score of 3 points, 2 points or 1 point.

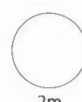
The percentage bar chart shows their responses.



Work out the **mean** number of points.

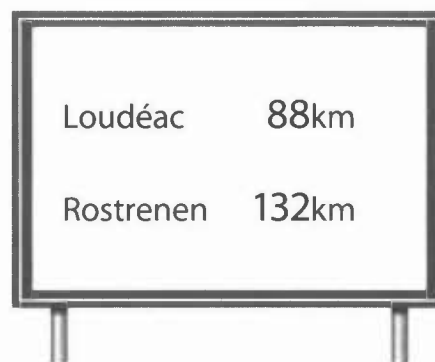


points



2m

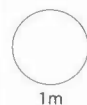
- 25 Manon sees this road sign in France.



She knows that it takes 60 minutes to drive to Loudéac.

At the same speed, how long would it take to drive to Rostrenen?

minutes

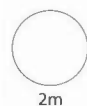


26

$$\text{Temperature in } ^\circ\text{C} = \frac{(\text{Temperature in } ^\circ\text{F} - 32)}{1.8}$$

The temperature in the clouds of Jupiter is about -238°F .

Work out this temperature in $^\circ\text{C}$.



TOTAL



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National Numeracy Tests

**PROCEDURAL
9EP17MS**

Markscheme



150310



Llywodraeth Cymru
Welsh Government

Markscheme

General marking rules

It is essential that you apply this markscheme, the marking guidance and the general marking rules given below to your own marking, in order for the standardised scores to be valid.

- Incorrect or unacceptable answers are given a mark of 0. No half marks are awarded.
- At the end of each double-page spread of marking, record the total number of marks in the 'total' box in the bottom right-hand corner. Check that the mark recorded does not exceed the maximum number of marks available.
- Once the marking has been completed, add up the total number of marks awarded. This is the total score and should be recorded on the cover of the test booklet and input onto the relevant mark sheet on the school's management information system, together with the details and date of the test taken.
- This data should then be submitted as part of the Welsh National Tests Data Collection (WNTDC). Further details are available from the *National Reading and Numeracy Tests – Test administration handbook 2017* on the Learning Wales website and in *Welsh National Tests Data Collection and reporting arrangements 2016/17* available on the Welsh Government website.
- Markers should record their initials on the cover of the test booklet to assist quality assurance.

Marking the modified tests

For learners using the modified large print or Braille test materials, some questions have been adapted or replaced. When marking a modified large print or Braille test, please use this markscheme alongside the adapted markscheme which is included in the *Notes for teachers* that accompany the modified tests.

Marking guidance

It is important that the tests are marked accurately. The questions and answers below help to develop a common understanding of how to mark fairly and consistently.

Must learners use the answer boxes?

Provided there is no ambiguity, learners can respond anywhere on the page. If there is more than one answer, the one in the answer box must be marked, even if incorrect. However, if the incorrect answer is clearly because of a transcription error (e.g. 65 has been copied as 56), mark the answer shown in the working.

Does it matter if the learner writes the answer differently from that shown in the markscheme?

Numerically equivalent answers (e.g. eight for 8, or two-quarters or 0.5 for half) should be marked as correct unless the markscheme states otherwise.

How should I mark answers involving money?

Money can be shown in pounds or pence, but a missing zero, e.g. £4.7, should be marked as incorrect unless the markscheme states otherwise.

How should I mark answers involving time?

In the real world, specific times are shown in a multiplicity of ways so accept, for example, 02:30, 2.30, half past 2, etc. Do not accept 2.3 as this is ambiguous. The same principle should be used for marking time intervals, e.g. for two and a half hours accept 2.5 but not 2.5pm.

What if the method is wrong but the answer is correct?

Unless the markscheme states otherwise, correct responses should be marked as correct even if the working is incorrect as learners may have started again without showing their revised approach.

What if the learner has shown understanding but has misread information in the question?

For a two (or more) mark item, if an incorrect answer arises from misreading information given in the question and the question has not become easier as a result, then deduct one mark only. For example, if the two-mark question is 86×67 and the learner records 96×67 then gives the answer 6432, one mark should be given. In a one-mark question, no marks can be given.

What should I do about crossed-out work?

Working which has been crossed out and not replaced can be marked if it is still legible.

What is the difference between a numerical error and a conceptual error?

A numerical error is one in which a slip is made, e.g. within 86×67 the learner works out $6 \times 7 = 54$ within an otherwise correct response. A conceptual error is a more serious misunderstanding for which no method marks are available, e.g. if 86×60 is recorded as 516 rather than 5160

What if learners use a method that is not shown within the markscheme?

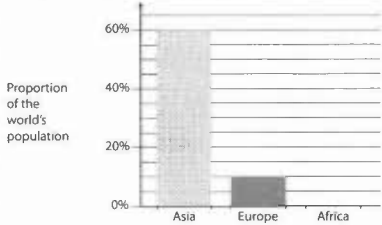
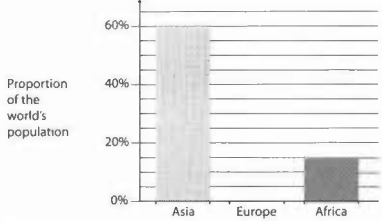
There can be a wide range of approaches to a question (e.g. long multiplication) and any correct method, however idiosyncratic, is acceptable.

In one-mark questions, the mark should be given for the correct answer, whatever the method used.

In two-mark questions, the correct answer should be given two marks, whatever the method used, unless the markscheme states otherwise. Most two-mark questions give one mark if the answer is incorrect but the learner shows a correct method: a correct method is one that would lead to a correct answer if there were no numerical errors.

9EP17 Procedural test: Markscheme

Q	Marks	Answer	Comments
1	1m	0.75	Accept equivalent decimals but do not accept equivalent fractions
2i	1m	858	
2ii	1m	143	
3	1m	£1.30 cheaper	
4i	1m	£10(.00)	
4ii	1m	37.5(0) Swiss francs, or equivalent	Accept 36.75 to 38.25 inclusive
5	1m	20%	Do not accept equivalent fractions or decimals

Q	Marks	Answer	Comments
6	1m	10 centimetres	
7i	1m	Draws a bar for Europe to represent 10% 	Accept slight inaccuracy provided the intention is clear Accept any unambiguous indication, e.g. a vertical line
7ii	1m	Draws a bar for Africa to represent 15%  Or Draws a bar for Africa that is one-and-a-half times as tall as their bar for Europe	Accept slight inaccuracy provided the intention is clear Accept any unambiguous indication, e.g. a vertical line
8	2m	$\frac{3}{5}$	For 2m do not accept equivalent fractions or decimals
	Or 1m	Shows a fraction or decimal equivalent to $\frac{3}{5}$ Or Shows both 60 and 100 Or Shows a fraction with 60 as the numerator and at least one correct simplification of the fraction Or Shows a fraction with 100 as the denominator and at least one correct simplification of the fraction	Accept 60% Example for 1m: $\frac{60}{80} = \frac{6}{8}$ Example for 1m: $\frac{34}{100} = \frac{17}{50}$
9i	1m	64	Do not accept $4 \times 4 \times 4$
9ii	1m	10	Do not accept -10
10	1m	$3\frac{1}{3}$	Do not accept equivalent fractions or decimals

Q	Marks	Answer	Comments
11	1m	£20(.00)	Do not accept £20.20
12i	1m	0.04	Accept equivalent fractions or decimals
12ii	1m	10	
13	1m	Negative or inverse correlation	Ignore qualifiers, e.g. strong
14	1m	£50(.00)	
15i	1m	Diameter = $2 \times$ radius	
15ii	1m	$5 \times \pi$ <u>$10 \times \pi$</u> $25 \times \pi$ $100 \times \pi$	Accept any unambiguous indication, e.g. circling $10 \times \pi$
16	1m	4000 pesos	
17	2m Or 1m	190 kilometres per hour 144 or 1440 shown, or implied by the correct carry figure in their working Or Divides by numbers that multiply to 16, with not more than one numerical error	Example for 1m: $30^{14}40$ Example for 1m: $3040 \div 4 = 780$ (error) $780 \div 4 = 195$
18	1m	12 centimetres	
19	1m	10^9 10^8 10^7 <u>10^6</u> 10^5	Accept any unambiguous indication, e.g. ticking 10^6
20	1m	180 donors	
21	1m	98 pounds	
22	1m	67%	Do not accept $66\frac{2}{3}\%$ or equivalent, or 66%

Q	Marks	Answer	Comments
23	1m	$0.15 \div 28$ $15 \div 100 \times 28$ 0.15×28 $100 \div 15 \times 28$	<p>Both required, and no others, for the mark</p> <p>Accept any unambiguous indication, e.g. ticking the correct answers</p>
24	2m Or 1m	<p>2.3(0) points</p> <p>Shows 230 Or Incorrect answer, but shows a method that would lead to 2.3(0) points if calculated correctly, with not more than one numerical error</p>	<p>Accept 2.3(0) seen then rounded to 2 but otherwise do not accept 2</p> <p>Example of a correct method: $3 \times 50 + 2 \times 30 + 20 = 250$ (error) Answer 2.5</p>
25	1m	90 minutes	Accept equivalent time intervals, e.g. 1h 30m
26	2m Or 1m	<p>-150°C</p> <p>Shows 150 Or Shows -270 or 270 Or Answer between -114 and -115 inclusive (has added 32 not subtracted) Or Answer between -144 and -156 inclusive (likely error in subtracting 32 from -238)</p>	

