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National 3

Applications of Mathematics

Q&A Booklet: Key Facts to Memorise

Ways of using this booklet:

- 1) Write the questions on cards with the answers on the back and **test yourself**.
- 2) **Work with a friend** who is also doing National 3 Applications to take turns reading a random question and answering.
- 3) **Ask a friend or family member** to test you by reading questions (on the left-hand side) to you.

The questions are on the left-hand side of each page and the answers are on the right.

Choosing the Sum

1) What type of sum do you do when a question asks how much is left?	Take away
2) What type of sum do you do when a question asks you to share equally?	Divide
3) What two type of sums might you do if a question asks you to work out the total?	Add or multiply
4) What type of sum do you do if something increases?	Add
5) What type of sum do you do if something decreases?	Take away
6) What sum do you do to work out how many smaller things can fit in to something larger?	Divide

Fractions and Percentages

7) What sum do you do to work out $\frac{1}{2}$ (one half) of something?	Divide by 2
8) What sum do you do to work out $\frac{1}{4}$ (one quarter) of something?	Divide by 4
9) What sum do you do to work out $\frac{1}{5}$ (one fifth) of something?	Divide by 5
10) What sum do you do to work out $\frac{1}{3}$ (one third) of something?	Divide by 3
11) What sum do you do to work out 50% ?	Divide by 2 (or "half it")
12) What sum do you do to work out 10% ?	Divide by 10
13) What sum do you do to work out 25% ?	Divide by 4 (or "find a quarter of it")
14) What sum do you do to work out 75% ?	Divide by 4 and times by 3

Measurement	
15) How many centimetres are in a metre ?	100
16) How many metres are in a kilometre ?	1000
17) How many millimetres are in a centimetre ?	10
18) How many grams are in a kilogram ?	1000
19) How many millilitres are in a litre ?	1000
20) What units are used for temperature ?	Degrees C (or Degrees Celsius)
21) What units are used for measuring angles ?	Degrees
22) Name any units that can be used to measure weight	Any of the following: Grams, Kilograms, Tonnes, Stone etc.
23) Name any units that can be used to measure length	Any of the following: Centimetres, Metres, Miles, Kilometres, Inches etc.
24) Name any units that can be used to measure volume	Any of the following: Litres, Millilitres, Centimetres cubed, Gallons etc.

Probability	
25) What is the probability of something impossible ?	Zero
26) What is the probability of something certain ?	One

Perimeter, Area Volume	
27) When do you use squared units e.g. centimetres squared (cm^2) or metres squared (m^2)?	When you are working out an area Alternative answer: when the formula begins "A ="
28) When do you use cubed units e.g. metres cubed (m^3) or centimetres cubed (cm^3)?	When you are working out a volume Alternative answer: when the formula begins "V ="
29) What is the formula for the volume of a cuboid ?	$V = LBH$ Alternative answer: Length times Breadth times Height
30) What is the formula for the area of a rectangle ?	$A = LB$ Alternative answer: Length times Breadth
31) How do you find the perimeter of a shape?	Add all the lengths around the outside together

Direction and Scale	
32) From a scale drawing, what are the three steps to find the real-life length?	<ol style="list-style-type: none"> 1. Measure with a ruler 2. Multiply by the number in the scale 3. Write units on the end of your answer

Money	
33) What type of sum do you do to work out a discount ?	Work out the discount and then take it away
34) What does income mean?	The money you get in
35) What does expenditure mean?	The money you spend
36) How do you work out Total Expenditure ?	Add all the numbers together
37) What sum do you do with income and expenditure to work out how much money is left over?	Income take away expenditure
38) Name an example of a deduction from pay?	Possible answers include: Tax, National Insurance, Pension etc.
39) What does gross pay mean?	The amount you get paid <u>before</u> deductions are taken off
40) What does net pay mean?	The amount you get paid <u>after</u> deductions are taken off
41) How do you work out net pay ?	Take the Deductions away from the Net Pay

Statistics	
42) If you are asked to draw a frequency table , what does this mean?	A tally chart
43) What two things do you need to remember when drawing a frequency table?	1) Three columns including tally and frequency 2) Headings for columns
44) What three things do you need to remember when drawing a bar chart?	1) Scale up the side with a label 2) Gaps between each bar 3) Each bar the same width
45) How do you find the mean ?	a) Add all the numbers together b) Divide by how many numbers there are