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Q&A Booklet:
Key Facts to Memorise
Broad General Education Booklet 3

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.

Times Table Facts	
1) What is 6 × 6?	36
2) What is 6 × 7?	42
3) What is 6 × 8?	48
4) What is 6 × 9?	54
5) What is 7 × 7?	49
6) What is 7 × 8?	56
7) What is 7 × 9?	63
8) What is 8 × 8?	64
9) What is 8 × 9?	72
10) What is 9 × 9?	81
11) What is 36 ÷ 6?	36
12) What is 42 ÷ 7?	6
13) What is 48 ÷ 8?	6
14) What is 54 ÷ 9?	6
15) What is 49 ÷ 7?	7
16) What is 56 ÷ 8?	7
17) What is 63 ÷ 9?	7
18) What is 64 ÷ 8?	8
19) What is 72 ÷ 9?	8
20) What is 81 ÷ 9?	9
21) What is 3 squared?	9
22) What is 4 squared?	16
23) What is 5 squared?	25
24) What is 6 squared?	36
25) What is 7 squared?	49
26) What is 8 squared?	64
27) What is 9 squared?	81
28) What is 10 squared?	100
29) What is the square root of 9?	3
30) What is the square root of 16?	4
31) What is the square root of 25?	5
32) What is the square root of 36?	6
33) What is the square root of 49?	7
34) What is the square root of 64?	8
35) What is the square root of 81?	9
36) What is the square root of 100?	10

Whole Numbers, Multiply and Divide	
37) How many zeroes are there in a **million**?	Six
38) How many zeroes are there in a **billion**?	Nine
39) What is the answer when you multiply any number by 1?	The same number
40) What is the answer when you multiply any number by 0?	0
41) What is a **multiple**?	A number which is in the times table of another number
42) What is a **factor**?	A number which divides into another number without a remainder
43) What is a **prime number**?	A number with only two factors: itself and one
44) How do you **square** a number?	Multiply by itself
45) BODMAS: what sum do you have to do <u>first</u>: add, subtract or multiply?	Multiply
46) BODMAS: what sum do you have to do <u>last</u>: divide, multiply or add?	Add

Fractions	
47) How do you work out a fraction of an amount?	Divide by the bottom and multiply by the top
48) What is the proper name for the number on <u>top</u> of a fraction?	Numerator
49) What is the proper name for the number on the <u>bottom</u> of a fraction?	Denominator
50) How do you add or subtract two fractions with the <u>same</u> numbers on the bottom?	Keep the numbers on the bottom the same, and add the numbers on the top.
51) What is the name of the method to add or subtract two fractions with <u>different</u> numbers on the bottom?	The “kiss and smile” method.

Percentages	
52) What sum do you do to work out **10%**?	Divide by 10
53) What sum do you do to work out **25%**?	Divide by 4 (or "find a quarter of it")
54) What sum do you do to work out **75%**?	Divide by 4 and times by 3
55) What do you do to work out **30%** without a calculator?	Divide by 10 and times by 3 ***Alternative answer:*** find 10% and times by 3
56) What sum do you do to work out **70%** without a calculator?	Divide by 10 and times by 7 ***Alternative answer:*** find 10% and times by 7
57) What sum do you do to work out **3%** without a calculator?	Divide by 100 and times by 3 ***Alternative answer:*** find 1% and times by 3
58) What sum do you do to work out **5%** without a calculator?	Divide by 100 and times by 5 ***Alternative answer:*** find 1% and times by 5 ***Alternative answer:*** find 10% and half it

Negative Numbers	
59) To add a negative number do you count up or down?	Down
60) To add a positive number do you count up or down?	Up
61) To subtract a positive number do you count up or down?	Down
62) To subtract a negative number do you count up or down?	Up
63) How do you subtract a negative number?	The sum becomes an add
64) When you multiply one negative number and one positive number is the answer negative or positive?	Negative
65) When you multiply two negative numbers is the answer negative or positive?	Positive
66) When you square a number is the answer negative or positive?	Positive
67) When you divide one negative number and one positive number is the answer negative or positive?	Negative
68) When you divide two negative numbers is the answer negative or positive?	Positive

Statistics	
69) If you are asked to draw a **frequency table**, what does this mean?	A tally chart
70) How do you find the **mean**?	a) Add all the numbers together b) Divide by how many numbers there are
71) How do you find the **range**?	Highest take away Lowest
72) How do you find the **mode**?	The most frequent number
73) How do you find the **median**?	The middle number
74) What do you have to do before you can find the median?	Put the numbers in order
75) If a **mean, median or mode is higher**, what comment can you make?	On average the numbers are higher
76) If a **mean, median or mode is lower**, what comment can you make?	On average the numbers are lower
77) If a **range is higher**, what comment can you make?	The numbers are more varied
78) If a **range is lower**, what comment can you make?	The numbers are more consistent
79) In a scatter graph, does a line of best fit need to go through the origin?	No
80) If a scatter graph question asks you to 'estimate' what do you do?	Use your line of best fit to read off the graph

Measurement	
81) How many **centimetres** are in a **metre**?	100
82) How many **metres** are in a **kilometre**?	1000
83) How many **millimetres** are in a **centimetre**?	10
84) How many **grams** are in a **kilogram**?	1000
85) How many **kilograms** are in a **tonne**?	1000
86) How many **millilitres** are in a **litre**?	1000
87) How many **centimetres cubed** are in a **litre**?	1000

Perimeter, Area Volume	
88) When do you use **squared units** e.g. centimetres squared (cm²) or metres squared (m²)?	When you are working out an area **Alternative answer:** when the formula begins "*A* ="
89) When do you use **cubed units** e.g. metres cubed (m³) or centimetres cubed (cm³)?	When you are working out a volume **Alternative answer:** when the formula begins "*V* ="
90) What is the formula for the volume of a **cuboid**?	Length times Breadth times Height **Alternative answer:** $V = LBH$
91) What is the formula for the area of a **rectangle**?	Length times Breadth **Alternative answer:** $A = LB$
92) How do you find the area of a **triangle**?	Half Base times Height **Alternative answer:** $A = \frac{BH}{2}$ **(A equals B H over 2)**
93) How do you find the **perimeter** of a shape?	Add all the lengths together
94) What is the formula for the **area** of a circle?	$A = \pi r^2$ **(A equals pi r squared)**
95) What is the formula for the **circumference** of a circle?	$C = \pi d$ **(C equals pi d)**
96) If you are told the radius, how do you find the **diameter** of a circle?	Double it
97) If you are told the diameter, how do you find the **radius** of a circle?	Half it

Time	
98) What is the formula for **speed**?	$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$ (or $S = \frac{D}{T}$)
99) What is the formula for **distance**?	$\text{Distance} = \text{Speed} \times \text{Time}$ (or $D = ST$)
100) What is the formula for **time taken**?	$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$ (or $T = \frac{D}{S}$)
101) How do you write **15 minutes** in hours using a decimal point?	0·25
102) How do you write **45 minutes** in hours using a decimal point?	0·75

Direction and Scale	
103) From a scale drawing, what are the three steps to find the real-life length?	1) Measure with a ruler 2) Multiply by the number in the scale 3) Write units on the end of your answer
104) What two things do you need to remember when drawing or measuring a **three-figure bearing** on a diagram?	1) Must start with zero at North 2) Must measure clockwise
105) From a real-life length, how do you find the length to draw in a scale drawing?	Divide by the number in the scale
106) From a scale drawing, how do you find the real-life length?	Multiply by the number in the scale

Angle	
107) What do the three angles in a **triangle** always add up to?	180 degrees
108) What do the four angles in a **quadrilateral** always add up to?	360 degrees
109) How many degrees in a full turn?	360
110) How many degrees in a half turn?	180
111) How many degrees in a straight angle?	180
112) How many degrees in a right angle?	90
113) What do the three angles in a triangle always add up to make?	180 degrees
114) What is the name of the type of angle that is less than 90 degrees?	Acute angle
115) What is the name of the type of angle that is bigger than a right angle and less than a straight angle?	Obtuse angle
116) What is the name of the type of angle that is bigger than a straight angle?	Reflex angle

Money	
117) What type of sum do you do to work out a **discount**?	Take away
118) What does **income** mean?	The money you get in
119) What does **expenditure** mean?	The money you spend
120) How do you work out **Total Expenditure**?	Add all the numbers together
121) What sum do you do with income and expenditure to work out how much money is left over?	Income take away expenditure
122) What are **deductions** from pay?	Tax, National Insurance etc.
123) What does **gross pay** mean?	The amount you get paid before deductions are taken off
124) What does **net pay** mean?	The amount you get paid after deductions are taken off
125) How do you work out net pay?	Take the Deductions away from the Net Pay
126) How do you work out how much somebody gets paid when you know how many hours they have worked?	Hourly pay × number of hours
127) If you get **time-and-a-half** for overtime, what do you multiply the pay by?	1·5
128) If you get **double time** for overtime, what do you multiply the pay by?	2
129) What are the three steps to calculate **monthly instalments** on a loan?	1) Calculate the interest as a percentage 2) Add on the interest to the original amount 3) Divide by the number of months
130) When using exchange rates, how do you decide whether to **multiply** or **divide**?	Multiply when changing into foreign money, divide when changing back into pounds.

Probability	
131) What is the probability of something **impossible**?	Zero
132) What is the probability of something **certain**?	One **Alternative answer:** 100%
133) How can you decide which probability is most likely?	Change all probabilities to a percentage and choose the largest one.
134) How do you change a probability from a fraction to a percentage?	Top number divided by bottom number multiplied by 100.

Shape	
135) What are the three steps involved in a **Pythagoras** question?	1) Square 2) Add or take away 3) Square root
136) When do you choose to **add** in a Pythagoras question?	If the side you are finding is the longest one
137) When do you choose to **take away** in a Pythagoras question?	If the side you are finding is a shorter one
138) How do you calculate a gradient?	Vertical distance divided by horizontal distance
139) How many sides does a **pentagon** have?	5
140) How many sides does a **hexagon** have?	6
141) How many sides does an **octagon** have?	8
142) What is special about an **equilateral** triangle?	All sides and angles are the same?
143) What is special about an **isosceles** triangle?	Two sides and angles are the same
144) If you know the diameter of a circle, how do you find the radius?	Half it
145) If you know the radius of a circle, how do you find the diameter?	Double it