Newbattle Community High School

National 5
Lifeskills Mathematics

Key Facts Q&A

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 N5 Lifeskills 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.

If the person who is testing you has not done National 5 level Maths recently (or ever!), they may need some help reading the questions, so some mathematical symbols have been written out phonetically **(in a smaller bold underlined font) to help them.

Questions with a grey background are also repeated on the formula sheet, but it is still a good idea to memorise them ahead of the exam

Numeracy: Measurement

1) How do you change **centimetres** to **metres**?	Divide by 100
2) How do you change **metres** to **centimetres**?	Multiply by 100
3) How do you change **kilometres** to **metres**?	Multiply by 1000
4) How do you change **metres** to **kilometres**?	Divide by 1000
5) How do you change **centimetres** to **millimetres**?	Multiply by 10
6) How do you change **millimetres** to **centimetres**?	Divide by 10
7) How do you change **grams** to **kilograms**?	Divide by 1000
8) How do you change **kilograms** to **grams**?	Multiply by 1000
9) How many **centimetres cubed** are in a **litre**?	1000

Numeracy: Basic Areas and Volumes

10) When do you use **squared units** e.g. centimetres squared (cm^2) or metres squared (m^2)?	When you are working out an area (or when the formula begins "$A =$"
11) When do you use **cubed units** e.g. metres cubed (m^3) or centimetres cubed (cm^3)?	When you are working out an volume (or when the formula begins "$V =$"
12) How do you find the area of a **rectangle**?	"Length times Breadth" (or $A = LB$)
13) How do you find the area of a **triangle**?	"Half Base times Height" (or $A = \frac{BH}{2}$) **(A equals B H over 2)**
14) How do you find the volume of a **cuboid**?	"Length times Breadth times Height" (or $V = LBH$)
15) If you are told the radius, how do you find the **diameter** of a circle?	Double it
16) If you are told the diameter, how do you find the **radius** of a circle?	Half it

© D Watkins 2016

this booklet may be used by other schools provided that Newbattle Community High School is acknowledged as the source

Numeracy: Fractions and Percentages

17) How do you work out a **fraction**?	Divide by the bottom and times (multiply) by the top
18) What do you divide by to work out **25%**?	4
19) What do you divide by to work out **10%**?	10
20) What sum do you do to work out **75%**?	Divide by 4 and times by 3 ***Alternative answer:*** find three-quarters
21) 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
22) 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
23) 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
24) 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
25) How do you work out a percentage with a calculator?	***either*** change to a decimal and multiply ***or*** divide by 100 and multiply
26) What fraction is the same as $33\frac{1}{3}\%$? **(thirty three and one third per cent)**	$\frac{1}{3}$
27) What fraction is the same as $66\frac{2}{3}\%$? **(sixty six and two thirds per cent)**	$\frac{2}{3}$

© D Watkins 2016

this booklet may be used by other schools provided that Newbattle Community High School is acknowledged as the source

Statistics

Don't forget to use the formula sheet in the exam:

Standard Deviation: $s = \sqrt{\frac{\sum (x - \bar{x})^2}{n-1}} = \sqrt{\frac{\sum x^2 - (\sum x)^2 / n}{n-1}}$

28) How do you find the **Interquartile Range** (IQR)?	Upper quartile take away Lower quartile
29) How do you find the **Semi-Interquartile Range** (SIQR)?	$\frac{\text{Upper Quartile} - \text{Lower Quartile}}{2}$
30) What does the symbol Σ **(sigma)** mean?	Add together all the numbers
31) What does the symbol $\bar{x}$ **(x bar)** mean?	The mean
32) In the standard deviation formula, what does *n* mean?	How many numbers there are
33) If the standard deviation is **higher**, what comment can you make?	The numbers are more varied
34) If the semi-interquartile range is **higher**, what comment can you make?	The numbers are more varied
35) If the mean or median is **higher**, what comment can you make?	On average, the numbers are higher
36) If the standard deviation is **lower**, what comment can you make?	The numbers are more consistent
37) If the semi-interquartile range is **lower**, what comment can you make?	The numbers are more consistent
38) If the mean or median is **lower**, what comment can you make?	On average, the numbers are lower
39) What five values are shown by a boxplot?	Lowest, Lower Quartile, Median, Upper Quartile, Highest
40) How do you find an angle in a pie chart?	360 ÷ Total × Frequency
41) How do you find the quartiles?	Put the list in order and split it into four equal groups

© D Watkins 2016

this booklet may be used by other schools provided that Newbattle Community High School is acknowledged as the source

Geometry

42) When do you use **squared units** e.g. centimetres squared (cm²) or metres squared (m²)?	When you are working out an area (or when the formula begins "$A =$"
43) When do you use **cubed units** e.g. metres cubed (m³) or centimetres cubed (cm³)?	When you are working out an volume (or when the formula begins "$V =$"
44) When do you use normal units (not squared or cubed)?	When you are working out a distance or perimeter
45) What is the formula for the area of a circle?	$A = \pi r^2$ **(A equals pi r squared)**
46) What is the formula for the **circumference** of a circle?	$C = \pi d$ **(C equals pi d)**
47) What is the formula for the volume of a **cylinder**?	$V = \pi r^2 h$ **(V equals pi r squared h)**
48) What is the formula for the volume of a **cone**?	$V = \frac{1}{3}\pi r^2 h$ **(V equals one third pi r squared h)**
49) What is the formula for the volume of a **sphere**?	$V = \frac{4}{3}\pi r^3$ **(V equals four thirds pi r cubed)**
50) What is a **hemisphere**?	Half a sphere
51) How do you find the volume of a **prism**?	a) Find the area of the end b) Multiply by the height
52) How do you find the **perimeter** of a shape?	Add all the outside lengths together
53) How do you find the **perimeter** of a shape with a curved edge?	a) Use $C = \pi d$ for the curved edge b) Add on any straight lengths
54) What are the three steps involved in a **Pythagoras** question?	a) Square b) Add or take away c) Square root
55) When do you choose to **add** in a Pythagoras question?	If the side you are finding is the longest one
56) When do you choose to **take away** in a Pythagoras question?	If the side you are finding is a shorter one
57) How do you calculate gradient?	Vertical distance ÷ Horizontal distance
58) What are the units for a gradient	There are no units. It is just a number.

© D Watkins 2016

this booklet may be used by other schools provided that Newbattle Community High School is acknowledged as the source

Measures: Speed, Distance and Time

59) What is the formula for **speed**?	$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$ (or $S = \frac{D}{T}$)
60) What is the formula for **distance**?	$\text{Distance} = \text{Speed} \times \text{Time}$ (or $D = ST$)
61) What is the formula for **time taken**?	$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$ (or $T = \frac{D}{S}$)
62) How do you change minutes into a decimal?	Divide by 60
63) How do you change hours (as a decimal) into hours and minutes?	Multiply the bit after the point by 60 to get the minutes
64) In an activity network, how do you find the shortest time required for the activity?	Look for the <u>longest</u> path through the diagram from start to finish
65) What is a **precedence table**?	A table showing a list of the tasks required to do a job showing which tasks have to come before others
66) What is a **prerequisite** task?	Something that must be completed before the next task can be begun.
67) When discussing Time Zones, what does GMT mean?	Normal UK time (Greenwich Mean Time)
68) When discussing Time Zones, what does BST stand for?	British Summer Time

Measures: Scale Drawing

69) If you are asked to choose a scale for a scale drawing, what would you usually begin the scale by writing?	1cm = ...
70) In a scale drawing, how do you work out what length to draw on the page?	Divide the real-life length by the scale factor
71) How do you work out a real-life length from a scale drawing>	Measure the length on the page and then multiply by the scale factor
72) What do you have to remember when measuring a **bearing?**	a) Start from North b) Measure clockwise c) Use three digits

© D Watkins 2016

this booklet may be used by other schools provided that Newbattle Community High School is acknowledged as the source

Finance

73) How do you calculate somebody's monthly wage when you know their annual salary?	Divide by 12
74) How do you find net pay?	Net Pay = Gross Pay – Total Deductions
75) If you get **double time** for overtime, what do you multiply by?	2
76) If you get **time-and-a-half** for overtime, what do you multiply by?	1·5
77) If you get **time-and-a-quarter** for overtime, what do you multiply by?	1·25
78) How do you find somebody's **taxable income**?	Annual salary – Tax allowances
79) How do you calculate somebody's annual tax?	a) Work out the taxable income. b) Work out the percentage of this amount.
80) When changing money from pounds into another currency, what type of sum do you do?	Multiply by the exchange rate
81) When changing money from another currency back into pounds, what type of sum do you do?	Divide by the exchange rate
82) In a credit card question, what does APR stand for?	Annual Percentage Rate (the interest rate per year)

© D Watkins 2016

this booklet may be used by other schools provided that Newbattle Community High School is acknowledged as the source

General Skills	
83) What do you need to include when a question asks you to '**explain your answer**' (or '**give a reason**')?	Two numbers and a comparing word.
84) When a question asks you to round your answer, what do you have to remember?	Write the unrounded answer as well as the rounded one.
85) If the answer to a question is a fraction, what do you have to remember?	You must simplify the fraction
86) If a question uses the word "hence", what does this tell you?	Your last answer can help you somehow
87) If a question uses the word "show that", what does this tell you?	The question is telling you the answer and you have to show all the working to get that answer.
88) If a question uses the words "state" or "write down", what does this tell you?	You should be able to get the answer easily without working

© D Watkins 2016

this booklet may be used by other schools provided that Newbattle Community High School is acknowledged as the source