

Name:

Form:

MATHS FUNDAMENTAL KNOWLEDGE QUIZ BOOKLET

Foundation



United Learning
The best in everyone™

■ Ambition ■ Confidence ■ Creativity ■ Respect ■ Enthusiasm ■ Determination

Unit 1: NUMERACY 1

Definition	Terminology
1. Write the number nine thousand three hundred and seventy-one in digits	9371
2. Write the number 444 in words	Four hundred and forty-four
3. What is the value of 8 in the number 89	80 or Eighty
4. What does this Mathematical symbol mean? $>$	Greater than
5. The first five _____ numbers are 2, 4, 6, 8, 10	Even
6. The first five _____ numbers are 1, 3, 5, 7, 9	Odd
7. The first five _____ numbers are 1, 4, 9, 16, 25	Square
8. The first five _____ numbers are 2, 3, 5, 7, 11	Prime
9. What does B stand for in BIDMAS?	Brackets
10. What does I stand for in BIDMAS?	Indices



Unit 2: NUMERACY 2

Definition	Terminology
1. Write the number twenty thousand four hundred and fifteen in digits	20415
2. Write the number 3000000 in words	Three million
3. What is the value of 8 in the number 58000	8000 or Eight thousand
4. What does this Mathematical symbol mean? $<$	Less than
5. List the first five even numbers	2, 4, 6, 8, 10
6. List the first five odd numbers	1, 3, 5, 7, 9
7. List the first five square numbers	1, 4, 9, 16, 25
8. List the first five prime numbers	2, 3, 5, 7, 11
9. What does D stand for in BIDMAS?	Divide
10. What does M stand for in BIDMAS?	Multiply



Unit 3: NUMERACY 3

Definition	Terminology
1. Write the number three thousand seven hundred and four in digits	3704
2. Write the number 14062 in words	Fourteen thousand and sixty-two
3. What is the value of 8 in the number 12809	800 or Eight hundred
4. The Mathematical word 'inverse' means	Opposite
5. The inverse of addition is	Subtraction
6. The inverse of multiplication is	Division
7. The top of a fraction is called the	Numerator
8. The bottom of a fraction is called the	Denominator
9. What does A stand for in BIDMAS?	Add
10. What does S stand for in BIDMAS?	Subtract



Unit 4: Fractions

Definition	Answer
1. The number 2 in the fraction is $\frac{2}{7}$ is called the	Numerator
2. The number 7 in the fraction is $\frac{2}{7}$ is called the	Denominator
3. A fraction represents which mathematical operation?	Division
4. What can be used to simplify a fraction?	The Highest Common Factor (HCF)
5. What do you need before you can add or subtract fractions?	A common denominator
6. What is the first step to calculate $\frac{1}{5} \times \frac{2}{7}$?	$\frac{1 \times 2}{5 \times 7}$
7. 5 is the ____ of $\frac{1}{5}$	Reciprocal
8. What is the method we use to divide fractions?	Multiply by the reciprocal
9. What is the first step to calculate $\frac{1}{5} \div \frac{3}{8}$?	$\frac{1}{5} \times \frac{8}{3}$
10. 'Divide by the denominator and multiply by the numerator' are the steps used to calculate ...	Fraction of an amount

Unit 5: Factors, multiples and prime numbers

Definition	Answer
1. The first five _____ numbers are 2, 3, 5, 7, 11	Prime
2. The _____ of 6 are 1, 2, 3 and 6	Factors
3. The first five _____ of 6 are 6, 12, 18, 24 and 30	Multiples
4. The _____ of 4 and 6 is 2	Highest Common Factor (HCF)
5. The _____ of 4 and 6 is 12	Lowest Common Multiple (LCM)
6. The mathematical word for a whole number	Integer
7. The product of two integers	Composite number
8. The process of expressing number as a product of its primes	Prime factor decomposition
9. What is the only even prime number?	2
10. What button do you press on the calculator to find the product of prime factors?	The FORMAT button

Unit 6: Algebra

Definition	Answer
1. What is the inverse operation of addition?	Subtraction
2. What is the inverse operation of multiplication?	Division
3. What is the inverse operation of squaring?	Square rooting
4. $a + a + a$ is equivalent to	$3a$
5. $a \times a \times a$ is equivalent to	a^3
6. Simplify $3a + 4a + 5b - 2b$	$7a + 3b$
7. Simplify $3x \times 5x$	$15x^2$
8. Simplify $3a \times 4b$	$12ab$
9. When $x = 4$ Find the value of $3x + 2$	$3 \times 4 + 2 = 14$
10. How to expand a single bracket	Multiply everything inside the bracket by the outside

Unit 7:Types of Number

Question/Definition	Answer
1. Name given for whole numbers including zeros	Integer
2. Ordering smallest to largest.	Ascending
3. Ordering largest to smallest.	Descending
4. The number or expression above the vinculum in a fraction.	Numerator
5. The number or expression below the vinculum in a fraction.	Denominator
8. The result of multiplying a number by itself.	Square Number
7. A number that only has two distinct factors, 1 and itself.	Prime
8. List first 10 square numbers.	1, 4, 9, 16, 25, 36, 49, 64, 81, 100
9. List first 10 prime numbers.	2, 3, 5, 7, 11, 13, 17, 19, 23, 29
10. List first triangular numbers.	0, 1, 3, 6, 10, 15, 21, 28, 36, 45

Unit 8: Properties of 2D Shapes

Question/Definition	Answer
1. A plane shape (two-dimensional, flat) with at least 3 straight sides and angles.	Polygon
2. A triangle of equal side lengths and angles.	Equilateral
3. A triangle or trapezium having two sides of equal length.	Isosceles
4. A triangle where all sides and angles are unequal.	Scale
5. A quadrilateral with two pairs of parallel sides and opposite sides equal length.	Parallelogram
6. A two-dimensional shape with four sides.	Quadrilateral
7. A shape having all sides of equal length.	Regular
8. The total distance around the outside of a closed 2D shape.	Perimeter
9. The name given to a shape with 5 sides.	Pentagon
10. The name given to a shape with 6 sides.	Hexagon
11. The name given to a shape with 7 sides.	Heptagon
12. The name given to a shape with 8 sides.	Octagon

Unit 9: Area and Angles

Definition/Question	Answer
1. Angles on a straight-line sum to	180
2. Angles in a triangle sum to	180
3. Angles around a point sum to	360
4. Angles in a quadrilateral sum to	360
5. Formula for calculating exterior angle of a polygon	$360 \div \text{no. of sides}$
6. Formula for calculating interior angle of a polygon	$180 - \text{exterior angle}$
7. Formula for calculating sum of angles in a polygon	$(n - 2) \times 180$
8. Formula for calculating area of rectangle or parallelogram	$\text{base} \times \text{height}$
9. Formula for calculating area of a triangle.	$\frac{\text{base} \times \text{height}}{2}$
10. Formula for calculating area of a trapezium.	$\frac{1}{2} (a + b) \times h$



Unit 10: Properties of Circles

Calculate

Formula

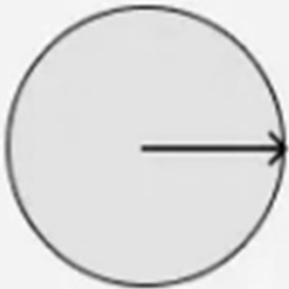
1. Area of circle.

$$\pi \times r^2$$

2. Circumference of Circle.

$$\pi \times d$$

1. RADIUS



2. SECTOR



3. SEGMENT



4. ARC



5. TANGENT



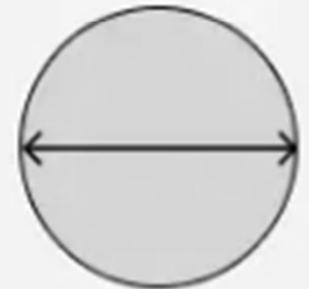
6. CHORD



7. CIRCUMFERENCE



8. DIAMETER



Unit 11: Properties of 3D Shapes

Question/Definition	Answer
1. A single flat surface of a 3D shape.	Face
2. The line segment that connects faces.	Edges
3. The corner of a 3D shape.	Vertices
4. A measurement of the 3D space occupied by a solid, liquid or gas.	Volume
5. Formula for Volume of a prism.	Area of cross section x length
6. Formula for Volume of a cylinder.	$\pi \times r^2 \times h$
7. I have 6 faces, 12 edges, 8 vertices.	Cube or Cuboid
8. I have 5 faces, 9 edges, 6 vertices.	Triangular prism
9. I have 3 faces, 2 edges and 0 vertices.	Cylinder
10. I have 2 faces, 1 edge, 1 vertex.	Cone

Unit 12: Probability

Definition/Question	Answer
1. The probabilities of all possible outcomes of an event always add up to	1 or 100%
2. How do we represent probabilities?	Fraction or Decimal
3. What is the estimated probability of an event happening called?	Relative frequency
4. How do you calculate the relative frequency of an event?	$\frac{\text{Number of times the event happened}}{\text{Total number of trials}}$
5. How can you improve the accuracy of an estimated probability?	Increase the number of trials
6. What should each branch in a tree diagram sum to?	1
7. How do you calculate the probability across branches in a tree diagram?	Multiply the probabilities
8. What does $A \cup B$ mean?	A or B
9. What does $A \cap B$ mean?	A and B, the intersection of the Venn diagram
10. What does A' mean?	The complement of A, not A.

Unit 13: Graphs

Question/Definition

Answer

1. The order of co-ordinates.

(x, y)

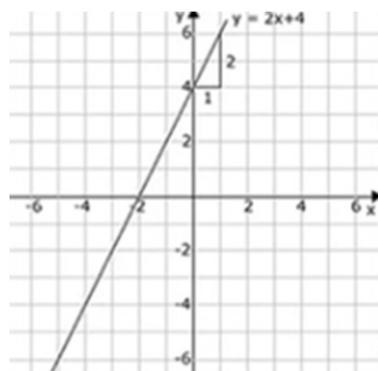
2. The equation for a straight line.

$y = mx + c$

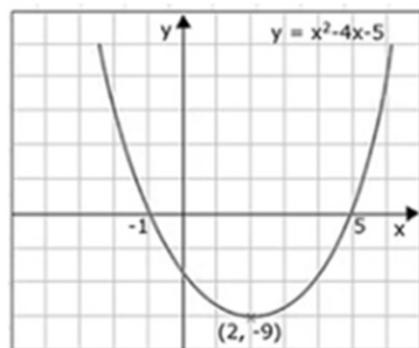
3. Method to calculate the gradient of a straight-line graph.

$$\frac{y_2 - y_1}{x_2 - x_1}$$

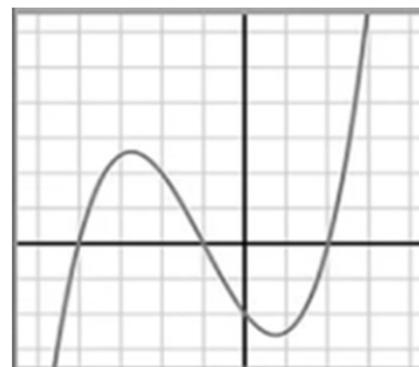
4. Name the type of graph



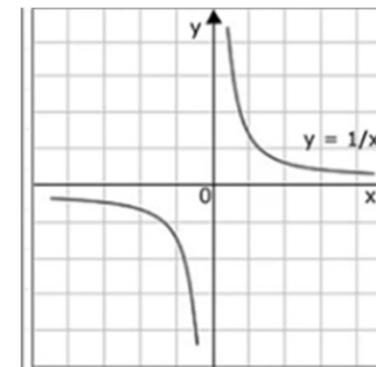
Linear Graph



Quadratic Graph



Cubic Graph



Reciprocal Graph

5. Where a linear graph crosses the y-axis.

Y-intercept

6. How steep a line is.

Gradient