

Year 7 Maths

Knowledge Organiser

Term 5

Name:	Class:
--------------	---------------

Keyword	Definition
Polygon	A 2D shape with 3 or more straight connected edges.
Quadrilateral	A 4 sided polygon.
Sum	The result of an addition.
Interior Angle	An angle on the inside of a 2D shape.
Obtuse	An angle more than 90° but less than 180°
Acute	An angle less than 90°
Reflex	An angle more than 180° but less than 360°
Area	A measure of 2D size.
Perimeter	The length around the outside of a 2D shape.
Compound shape	A shape made by combining other shapes.

Homework 1 due:	
Homework 2 due:	
Homework 3 due:	





RESPECT

In Mathematics, a classroom environment should always be respectful. Students can show respect through:

- **Supporting each other with their learning.** Pupils should recognise that every individual has their own strengths and weaknesses and, as a class, we should 'up-lift' students.
- **Students should not be felt to be rushed by others in the classroom.** Respect that all students have different experiences and therefore will access the knowledge at different rates.
- **Being Polite.** As no different to the rest of school. Students should embrace diversity and treat all others with tolerance and decency.



ASPIRATION

- **Building logical processes.** Understanding that learning mathematical concepts improves our logical reasoning which improves other aspects of our lives: language, culture, games etc. the essence of mathematics is in respect of ideas, structures and relationships by logical reasoning.
- **Every day needs.** Understanding that being numerate, along with literate, is a strong indicator of long-term success and students' ability to climb the tree of knowledge.



RESILIENCE

- **I don't know it... yet.** Understanding that maths can be abstract and that, as with anything new, it will take time to learn. With time, you will succeed.
- **Mathematical concept won't always come easily.** Understanding that getting things wrong is a frustrating and not pleasant feeling but, to succeed, it is a passage we need to go through.
- **Practice makes permanent.** Mathematics is a logical subject such that, rehearsal and repetition of method is the key to being successful and committing the knowledge to long-term memory. This process takes time and will come with failures along the way which we must persevere through.

Term 5 Overview

Big Questions for the term

Lines, angles and shapes

- How do we draw and measure angles?
- What are the basic angle facts?
- What are the properties of different Triangles?
- What are the properties of different Quadrilaterals?
- What is a polygon and what do the interior angles add up to?
- How can I use the sum of interior angles to work out problems?
- How can I work out the missing angle of any polygon?

Area and Perimeter

- What is perimeter and how do we measure it?
- What mistakes can people make with perimeter?
- What is area?
- How do we work out the area of a triangle?
- How do we work out the area of parallelograms and rhombi?
- How do we work out the area of trapeziums?

Knowledge Retrieval Questions – From Term 5

Unit 7 – Lines, Angles and Shapes

#	Question	Answer
1	What do the exterior angles of a polygon add up to?	360 degrees
2	What do the angles in a triangle add to?	180 degrees
3	What do the angles in a quadrilateral add up to?	360 degrees
4	What is special about adjacent and opposite angles in a parallelogram?	Adjacent angles sum to 180 degrees, opposite angles are equal.
5	List the types of angles in order of size	Acute, Right, Obtuse, Reflex
6	What do angles which make a straight line sum to?	180 degrees
7	What do angles around a point sum to?	360 degrees
8	How do you work out what the interior angles of a polygon add up to?	Count the sides, subtract 2, multiply by 180.

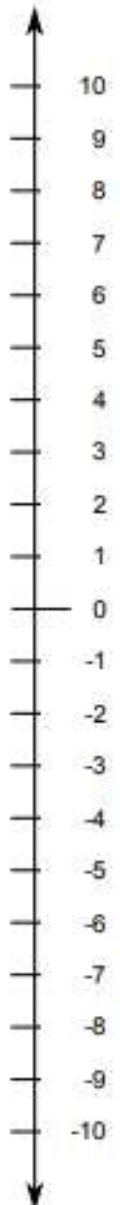
Unit 8 – Area and Perimeter

#	Question	Answer
1	State the properties of a square.	4 edges, all equal length, 4 right angles.
2	State the two properties of a trapezium.	Quadrilateral with one pair of parallel edges
3	What is a vertex?	A point where edges meet
4	State the properties of a parallelogram.	Quadrilateral with 2 pairs of parallel edges.
5	What is the formula for calculating the area of a rectangle?	Area = base \times height
6	How do you work out the perimeter of a 2D shape?	Add all the edge lengths
7	What is the formula for calculating the area of a triangle?	$1/2 \times$ base \times height
8	How do you work out the height of a rectangle if you know the area and the base length?	Area \div Base length
9	What is the formula for calculating the area of a trapezium?	Area = $1/2 \times$ (a+b) \times height
10	What is the formula for working out the area of a parallelogram?	Area = base \times height
11	What are the properties of a rectangle?	Quadrilateral with 2 pairs of parallel edges and 4 right angles.
12	What is the formula for working out the area of a square?	Area = base ²
13	How do you work out the height of a triangle if you know the area and the base length?	$2 \times$ Area \div Base length

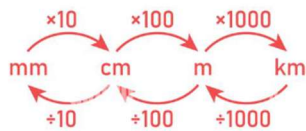
Multiplication Chart

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

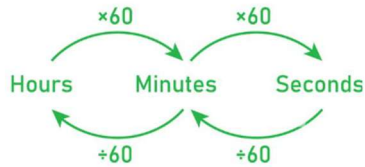
Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	.	tenths	hundredths	thousandths	ten thousandths	hundred thousandths
HTH	TTh	Th	H	T	0	.	t	h	th	tth	hth
100,000	10,000	1,000	100	10	1	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1,000}$	$\frac{1}{10,000}$	$\frac{1}{100,000}$
Whole Number Part						Decimal Point	Fractional Part				



Length



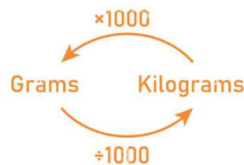
Time



Volume



Mass



Remote-Learning

If you are absent from school, lesson work can be found on your year group Teams channel: files -> class materials -> maths

This website is useful to students as it contains videos to support students understanding and also extra questions to extend and support students.

Please see your class teacher for any login issues

vle.mathswatch.co.uk

Username: firstnamesurname@dustonschool

Password: berrywood

Term 5 - Homework 1

#	Type	Question	Answer
1	Knowledge	What sign would the product of 2 negative numbers have?	Positive
	Application 1	What is the product of -3 and -3?	
	Application 2	What is the product of -16 and -8?	

2	Knowledge	How do you convert a decimal to a percentage?	Multiply by 100 (%)
	Application 1	Convert 0.89 into a percentage.	
	Application 2	Convert 0.139 into a percentage.	

3	Knowledge	How do you convert hours into minutes?	Multiply by 60
	Application 1	Convert 3 hours into minutes	
	Application 2	Convert 20 hours into minutes	

4	Knowledge	What does the word product mean?	The result of a multiplication.
	Application 1	What is the product of 8 and 3?	
	Application 2	What is the product of 5 and 16?	

#	Type	Question	Answer
5	Knowledge	How do you convert seconds into minutes?	Divide by 60
	Application 1	Convert 540 seconds into minutes	
	Application 2	Convert 720 seconds into minutes	

6	Knowledge	How do you find an equivalent fraction?	Multiply or divide the numerator and denominator by the same number.
	Application 1	State a fraction which is equivalent to $\frac{8}{37}$	
	Application 2	State a fraction which is equivalent to $\frac{15}{127}$	

7	Knowledge	How do you find the difference between two numbers?	Subtract the smaller number from the larger one.
	Application 1	What is the difference between 37 and 89?	
	Application 2	What is the difference between 127 and 139?	

8	Knowledge	How do you write a ratio in the form 1:n	Divide both numbers in the ratio by the first number in the ratio
	Application 1	Simplify 10:12 in the form 1:n	
	Application 2	Simplify 3:6 in the form 1:n	

#	Type	Question	Answer
9	Knowledge	How do you multiply a number by 10?	Move all the digits 1 place to the left
	Application 1	Evaluate 89 multiplied by 10.	
	Application 2	Evaluate 139 multiplied by 10.	

10	Knowledge	Why do we use BIDMAS?	Order of operations
	Application 1	Calculate $39 + 8 \times 3$	
	Application 2	Calculate $129 + 11 \times 19$	

11	Knowledge	What sign would the answer to a negative number divided by a positive number have?	Negative
	Application 1	Calculate -24 divided by 3	
	Application 2	Calculate -300 divided by 20	

12	Knowledge	What does HCF stand for?	Highest Common Factor
	Application 1	What is the HCF of 40 and 44?	
	Application 2	What is the HCF of 110 and 120?	

Term 5 - Homework 2

#	Type	Question	Answer
1	Knowledge	What does the word sum mean?	The result of addition.
	Application 1	What is the sum of 9 and 6?	
	Application 2	What is the sum of 17 and 14?	

2	Knowledge	What is adding a negative number equivalent to?	Subtracting a positive number
	Application 1	Evaluate $6 + (-2)$	
	Application 2	Evaluate $14 + (-18)$	

3	Knowledge	What does the word sum mean?	The result of addition.
	Application 1	What is the sum of 5 and 6?	
	Application 2	What is the sum of 15 and 20?	

4	Knowledge	What does HCF stand for?	Highest Common Factor
	Application 1	What is the HCF of 14 and 16?	
	Application 2	What is the HCF of 40 and 48?	

#	Type	Question	Answer
5	Knowledge	What is a linear sequence?	A number pattern which increases or decreases by the same amount each time.
	Application 1	Is the following sequence linear? 5, 7, 9, 11	
	Application 2	Is the following sequence linear? 20, 43, 68, 91	

6	Knowledge	How do you convert kilograms into grams?	Multiply by 1000
	Application 1	Convert 9kg into grams	
	Application 2	Convert 15.1kg into grams	

7	Knowledge	How do you add decimals?	Same method as usual, lining up the decimal points
	Application 1	Calculate $9 + 8.6$	
	Application 2	Calculate $15.1 + 17.3$	

8	Knowledge	How do you convert a mixed number to an improper fraction?	Multiply the whole number by the denominator and add it to the numerator
	Application 1	Convert 9 and $\frac{6}{7}$ into an improper fraction.	
	Application 2	Convert 17 and $\frac{14}{15}$ into an improper fraction.	

#	Type	Question	Answer
9	Knowledge	How do you work out the value of a digit in a long number?	Ignore every other digit (make them zeroes)
	Application 1	What is the value of the 2 in the number 31256?	
	Application 2	What is the value of the 2 in the number 52163?	

10	Knowledge	How do you share an amount in a ratio?	Add the ratio numbers and divide by that to get the value of each part
	Application 1	Divide £150 in the ratio 7:8	
	Application 2	Divide 150kg in the ratio 3:7	

11	Knowledge	How do you share an amount in a ratio?	Add the ratio numbers and divide by that to get the value of each part.
	Application 1	Share 66 into the ratio 7:4	
	Application 2	Share 112 into the ratio 6:2	

12	Knowledge	How do you simplify a ratio?	Divide both numbers by a common factor.
	Application 1	Fully simplify 8:24	
	Application 2	Fully simplify 22:90	

Term 5 - Homework 3

#	Type	Question	Answer
1	Knowledge	What is the definition of a factor?	A number which divides another number exactly.
	Application 1	Give an example of a factor of 6	
	Application 2	Give an example of a factor of 105	

2	Knowledge	How do you convert seconds into minutes?	Divide by 60
	Application 1	Convert 540 seconds into minutes	
	Application 2	Convert 900 seconds into minutes	

3	Knowledge	How do you calculate best value?	Work out the same amount for each option and compare them
	Application 1	Which is best value for money 3 apples for £1.50 or 4 apples for £1.60?	
	Application 2	Which is best value for money 10 pens for £9 or 5 pens for £5	

4	Knowledge	What sign would the product of a positive and a negative number have?	Negative
	Application 1	What is the product of 2 and -7?	
	Application 2	What is the product of 19 and -7?	

#	Type	Question	Answer
5	Knowledge	How do you convert metres to kilometres?	Divide by 1000
	Application 1	Convert 7400m into km	
	Application 2	Convert 11700m into km	

6	Knowledge	What is adding a negative number equivalent to?	Subtracting a positive number
	Application 1	Evaluate $2 + (-7)$	
	Application 2	Evaluate $19 + (-14)$	

7	Knowledge	Why do we use BIDMAS?	Order of operations
	Application 1	Calculate $43 + 5 \times 10$	
	Application 2	Calculate $120 + 19 \times 10$	

8	Knowledge	How do you work out the value of a digit in a long number?	Ignore every other digit (make them zeroes)
	Application 1	What is the value of the 4 in the number 53478?	
	Application 2	What is the value of the 1 in the number 41052?	

#	Type	Question	Answer
9	Knowledge	What does consecutive mean?	Following each other continuously.
	Application 1	Select 2 of these numbers which are consecutive: 2, 7, 3, 10.	
	Application 2	Select 2 of these numbers which are consecutive: 15, 20, 17, 19.	

10	Knowledge	What is subtracting a negative number equivalent to?	Adding a positive number
	Application 1	Calculate $9 - (-5)$	
	Application 2	Calculate $17 - (-14)$	

11	Knowledge	How do you convert kilograms into grams?	Multiply by 1000
	Application 1	Convert 6.7kg into grams	
	Application 2	Convert 19.4kg into grams	

12	Knowledge	How do you share an amount in a ratio?	Add the ratio numbers and divide by that to get the value of each part.
	Application 1	Share 34 into the ratio 7:10	
	Application 2	Share 171 into the ratio 2:7	



Financial Accountant

Financial accountants are employed by organisations or private clients to keep track of a company's financial transactions.

Your responsibilities might include:

- auditing accounts
- recording business transactions
- analysing how well a company is performing
- preparing and analysing financial statements
- presenting information on the financial health of a company
- providing financial advice

Financial accountants present information to an *external* audience, i.e. people outside of the company, such as shareholders, potential investors, industry regulators, financial institutions, lenders and creditors.

Working Hours and Environment

You might be employed directly by an organisation ('in industry') or work for an accountancy firm ('in practice'). Either way you will perform similar duties, but within a practice you'll work for a range of clients, rather than a single business.

Most financial accountants work full-time hours, Monday to Friday.

Entry Requirements

A Level 3 qualification that evidences your numeracy skills, such as A-levels in economics and mathematics, might be advantageous.

To become an accountant, you must complete training with one of the professional accountancy bodies, such as:

- AAT (Association of Accounting Technicians) accounting courses
- ACCA (Association of Chartered Certified Accountants) qualifications

Skills Required:

You'll need:

- numeracy skills
- analysis skills
- the ability to manage money
- communication skills (to present information to other people)
- attention to detail

Find out more about careers
on

UNIFROG

Maths for Fun

R	G	E	A	L	E	N	L	H	G	L	E	S
U	E	L	E	L	G	N	A	T	C	E	R	A
U	E	L	G	N	A	I	R	T	L	E	P	D
U	L	R	T	A	E	N	E	L	A	C	S	N
U	S	R	L	N	L	T	T	I	A	P	L	G
L	E	R	I	G	H	T	A	N	G	L	E	A
U	L	E	I	R	E	N	L	E	L	E	E	G
P	E	R	P	E	N	D	I	C	U	L	A	R
R	C	R	C	L	L	L	R	Q	G	L	E	L
S	S	G	A	E	S	H	D	N	R	A	N	A
T	O	E	Q	U	I	L	A	T	E	R	A	L
R	S	T	L	E	Q	L	U	R	E	A	A	H
E	I	E	E	A	R	S	Q	A	E	P	N	R

ANGLE
EQUILATERAL
ISOSCELES
LINE
PARALLEL
PERPENDICULAR

QUADRILATERAL
RIGHT ANGLE
SCALENE
SQUARE
TRIANGLE

www.subtangent.com/maths

Place the numbers 1-9 in every column, row and group of 9 squares (shown by the bold lines). You cannot have repeats in each one.

	8		9					
				6		1	9	
1	3			7	5		2	8
5	6			4				
	7		1	3		5		2
2	4			9	7		1	6
						2		7
	5			2	9	4	8	
8		2				9	6	