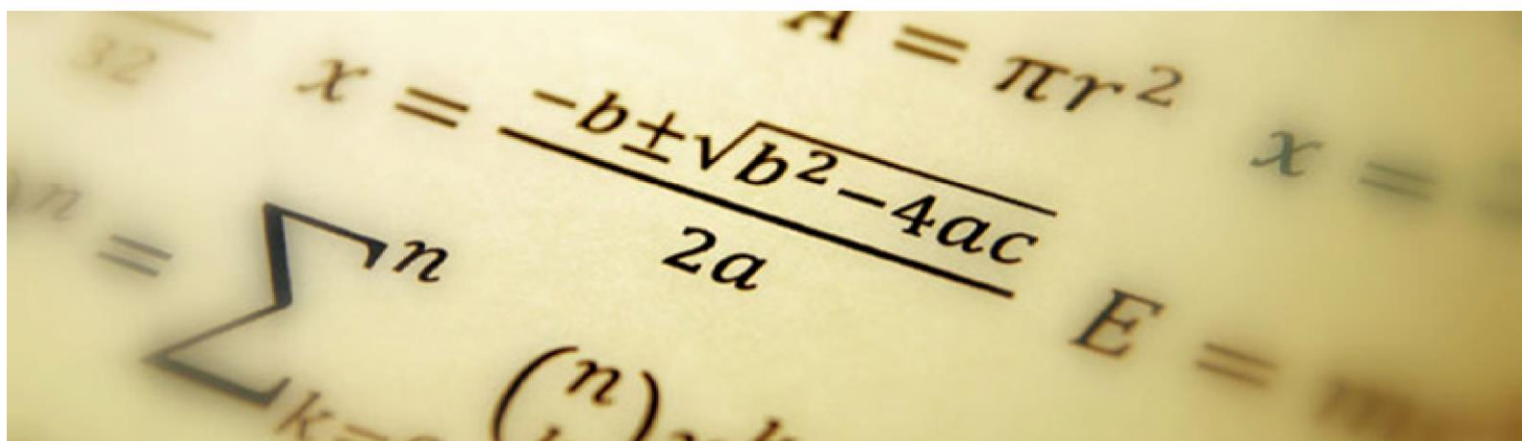




Knowledge Organiser *Maths*

Year 11 Term 3

Additional Maths



Additional Online Homework:

Platform	Due:

Log-in details:



Website: <https://vle.mathswatch.co.uk/vle/>

Username: (firstname)(lastname)@dustonschool

Password: berrywood



Website: <https://www.methodmaths.com/login.html>

Centre ID: duston

Username: (firstname)(lastname)

Password: berrywood



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Addition/Subtraction

$(+)$ becomes $+$	eg.
$(-)$ becomes $+$	$5 - (-3) = 5 + 3$
$(+)$ becomes $-$	eg.
$(-)$ becomes $-$	$5 + (-3) = 5 - 3$

Multiplication/Division

$(+) \times (+)$ becomes $+$	eg.
$(-) \times (-)$ becomes $+$	$(-5) \times (-3) = 15$
$(+) \times (-)$ becomes $-$	
$(-) \times (+)$ becomes $-$	eg.
	$(-5) \times 3 = -15$

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Prime Numbers

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, . . .

Each prime number has exactly two factors.

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Area of a triangle = $\frac{b \times h}{2}$



Area of trapezium = $\frac{1}{2}(a + b)h$



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The Laws of Indices

$$x^a \times x^b = x^{a+b}$$

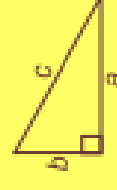
$$x^a \div x^b = x^{a-b}$$

$$(x^a)^b = x^{ab}$$

$$x^{-a} = \frac{1}{x^a}$$

Pythagoras

$$a^2 + b^2 = c^2$$



Homework 1

1. Write down all the factors of 30.

.....
(Total for Question 25 is 2 marks)

2 $g = 9$
 $h = 4$

Work out the value of $2g + 3h$

.....
(Total for Question 2 is 2 marks)

3 Write 7829 to the nearest 1000

.....
(Total for Question 4 is 1 mark)

4 Work out 2^3

.....
(Total for Question 5 is 1 mark)

5 Work out 60% of 70.

.....
(Total for Question 7 is 2 marks)

6 There are only 7 blue pens, 4 green pens and 6 red pens in a box.
One pen is taken at random from the box.
Write down the probability that this pen is blue.

.....
(Total for Question 13 is 2 marks)

7 Write 0.6 as a percentage.

..... %
(Total for Question 14 is 1 mark)

8 Work out $\frac{1}{12} + \frac{5}{6}$

.....
(Total for Question 29 is 2 marks)

9.

Here are the marks 20 students got in a French test.

76	82	84	69	80	64	70	81	75	91
87	67	80	70	94	76	81	69	71	77

(a) Show this information in a stem and leaf diagram.



(Total for Question 26 is 3 marks)

10.

Expand and simplify $5(p + 3) - 2(1 - 2p)$

.....

(Total for Question 39 is 2 marks)

- 11

5 tins of soup have a total weight of 1750 grams.

4 tins of soup and 3 packets of soup have a total weight of 1490 grams.

Work out the total weight of 3 tins of soup and 2 packets of soup.

..... grams

(Total for Question 23 is 4 marks)

Homework 2

- 1

Write the following numbers in order of size.
Start with the smallest number.

0.4 0.02 0.37 0.152 0.2

.....

(Total for Question 26 is 1 mark)
- 2

Write down two prime numbers that have a sum of 32

.....

(Total for Question 31 is 2 marks)
- 3

Work out $\frac{5}{8} \leftrightarrow \frac{3}{4}$

.....

(Total for Question 34 is 1 mark)
- 4

Simplify $m^3 + m^3$

.....

(Total for Question 12 is 1 mark)
- 5

Write 3.42×10^4 as an ordinary number.

.....

(Total for Question 13 is 1 mark)
- 6

Write 7.264 51 correct to 3 decimal places.

.....

(Total for Question 37 is 1 mark)

- 7

Express 56 as the product of its prime factors.

.....

(Total for Question 38 is 2 marks)
- 8

Simplify $7 \times e \times f \times 8$

.....

(Total for Question 41 is 1 mark)
- 9

Write 0.31 as a fraction.

.....

(Total for Question 3 is 1 mark)
- 10

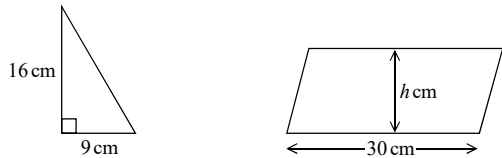
Adam gets a bonus of 30% of £80
Katy gets a bonus of £28
Work out the difference between the bonus Adam gets and the bonus Katy gets.

£.....

(Total for Question 5 is 3 marks)

- 11 There are 49 counters in a bag.
 20 of the counters are red.
 The rest of the counters are blue.
 One of the counters is taken at random.
 Find the probability that the counter is blue.

- 12 The diagram shows a right-angled triangle and a parallelogram.
 (Total for Question 6 is 2 marks)

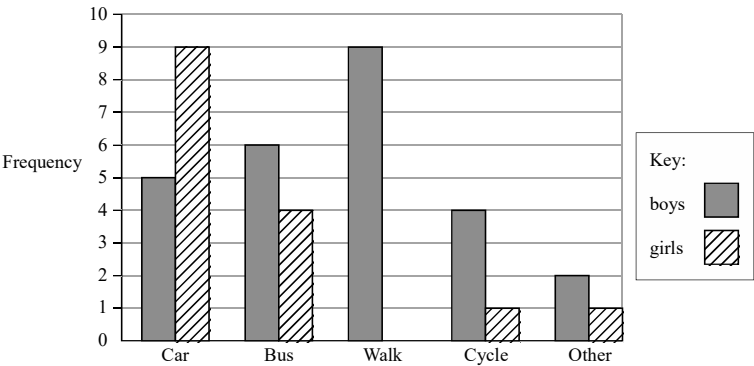


The area of the parallelogram is 5 times the area of the triangle.
 The perpendicular height of the parallelogram is h cm.
 Find the value of h .

$h =$
 (3)

(Total for Question 31 is 5 marks)

- 13 A teacher asks the students in Year 6 what type of transport they use to get to school.
 The dual bar chart shows some of the results.



- (a) What is the most popular type of transport used by the boys?

 (1)

- 7 girls walk to school.
 (b) Show this information on the dual bar chart.

 (1)

- More of the students get to school by car than by bus.
 (c) How many more?

 (1)

- The number of students in Year 5 is the same as the number of students in Year 6.
 (d) What is the total number of students in Years 5 and 6?

 (2)

(Total for Question 1 is 5 marks)

Homework 3

1. Work out $\frac{2}{3} - \frac{1}{4}$

.....
(Total for Question 36 is 2 marks)

2 Here is a list of numbers.

21 22 23 24 25 26 27 28 29

From the numbers in the list, write down a number that is a multiple of **both** 4 and 6.

.....
(Total for Question 2 is 1 mark)

3 Simplify $3m - m - m + 3m$

.....
(Total for Question 15 is 1 mark)

4 Write 4.7×10^{-1} as an ordinary number.

.....
(Total for Question 16 is 1 mark)

5 Solve $3(x - 4) = 12$

$x =$
(Total for Question 17 is 2 marks)

6 Simplify $2 \times n \times p \times 4$

.....
(Total for Question 19 is 1 mark)

7 Write down a square number that is also an odd number.

.....
(Total for Question 21 is 1 mark)

8 Write down the value of the 4 in the number 542.3

.....
(Total for Question 29 is 1 mark)

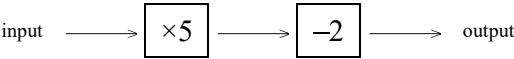
9 Simplify $10 + 3c + 5d - 7c + d$

.....
(Total for Question 30 is 2 marks)

10 Change 4560 g into kg.

.....kg
(Total for Question 35 is 1 mark)

11 Here is a number machine.



(a) Work out the **output** when the input is 8

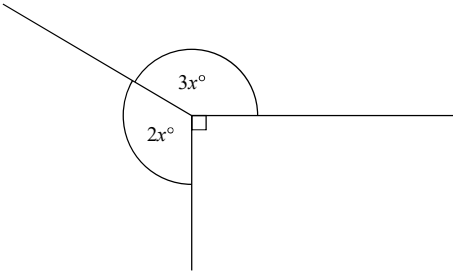
.....
(1)

(b) Work out the **input** when the output is 28

.....
(2)

(Total for Question 10 is 3 marks)

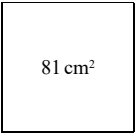
12



Find the value of x .

.....
(Total for Question 33 is 3 marks)

13 A square has an area of 81 cm^2



Find the perimeter of the square.

.....cm
(Total for Question 39 is 2 marks)

14 Trevor buys a boat.
The cost of the boat is £14 200 plus VAT at 20%
Trevor pays a deposit of £5000
He pays the rest of the cost in 10 equal payments.
Work out the amount of each of the 10 payments.

£
(Total for Question 19 is 4 marks)