Year 8 Maths Homework

Each week there is to be homework set, due in the day the teacher requests.
The topics for each week are listed below.

Week	Homework number	Topic
1	3.1	**Volume 1**
2	3.2	**Volume 2**
3	3.3	**Sequences**
4	3.4	**Graphs 1**
5	3.5	**Graphs 2**
6	3.6	**Pythagoras' theorem 1/ Area and perimeter (expressions)**
7	3.7	**Pythagoras' theorem/ Area and perimeter (expressions)**
8	3.8	**Trigonometry/ Fraction of amount**
9	3.9	**Trigonometry/ Equivalent fractions, proper and improper fractions**
10	3.10	**Trigonometry/ Add and subtract fractions**
11	3.11	**Study skills**
12	3.12	**Angles - reasoning**
13		**Term review**

✓**Key Assessment is taken during weeks 11/12** and will include a selection from all topics this term, as well as others from throughout the year.

✓Please note: The date given is the date which the work is being taught in class. The due date may well be the following week and is at the individual teachers discretion.

✓Each homework is divided into 3 sections, A B & C.

A is for **all** pupils to attempt.
B is slightly harder and for **most** pupils to attempt.
C is the higher level work for **some** pupils to attempt.

(Your teacher will tell you which parts you should work up to)

✓ONLY SPEND AROUND 30mins! If you are struggling, try using mymaths, if this doesn't help then ask someone who can, preferably your maths teacher (BEFORE IT IS DUE IN!)

✓Almost every other week is a Mymaths based homework. These are to be done online using your own login and password.
✓The initial school login is ***testwood*** and password is **fraction**.
✓Please remember to click 'checkout' at the end so your work is submitted.
✓ If you do not have the internet at home please use the learning resource centre (open until 4pm Monday – Thursday, 3.30pm Friday)

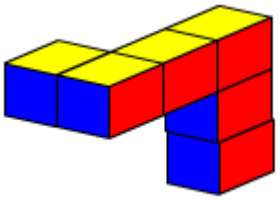
Name: …… **Date: ……..**

Homework 3.1 – Volume

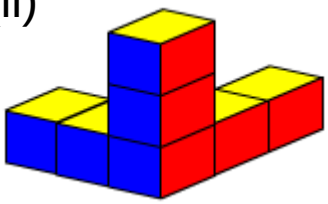
Week 1 Summer

A. 1. All of these shapes are built from centimetre cubes only.
How many cubes make up each shape?

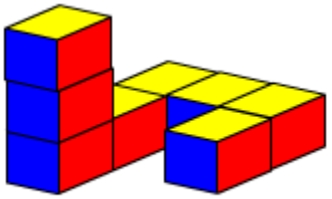
(i)



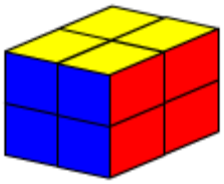
(ii)



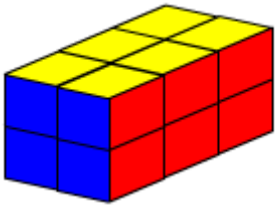
(iii)



(iv)

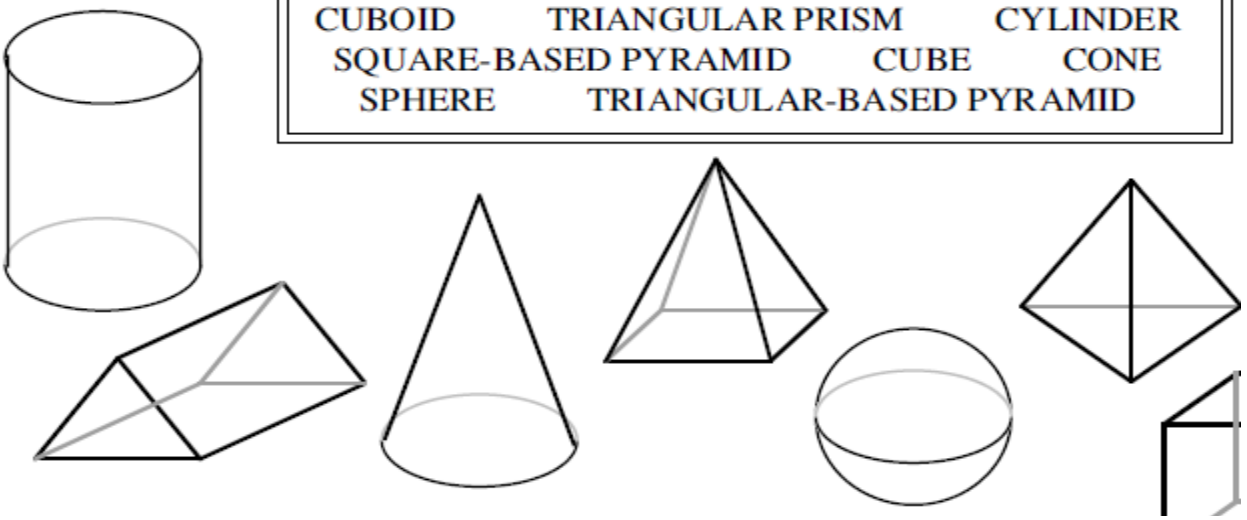


(v)



2. Write next to them the name that best fits the solid from the box below.

CUBOID	TRIANGULAR PRISM	CYLINDER
SQUARE-BASED PYRAMID	CUBE	CONE
SPHERE	TRIANGULAR-BASED PYRAMID	

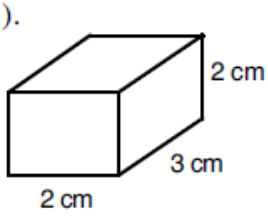


3. Use the formula below to find the volume of the following cuboids.

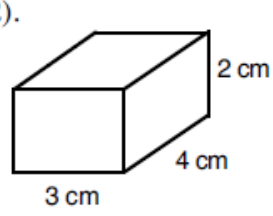
Volume = length x width x height

(Drawings are not to scale).

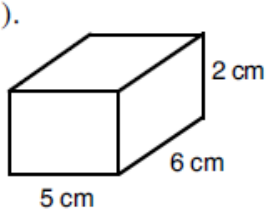
1).



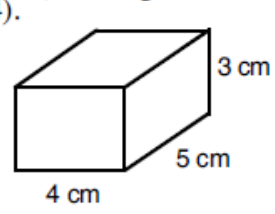
2).



3).



4).



Name: …… **Date: ……..**

Homework 3.1 – Volume

Week 1 Summer

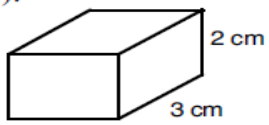
B. Use the formula below to find the volume of the following cuboids.

(i)

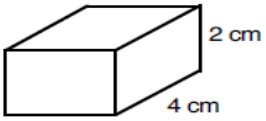
Volume = length x width x height

(Drawings are not to scale).

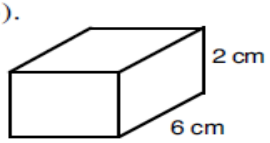
1).



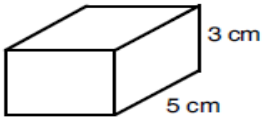
2).



3).

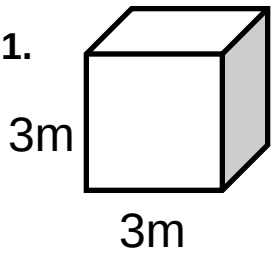


4).

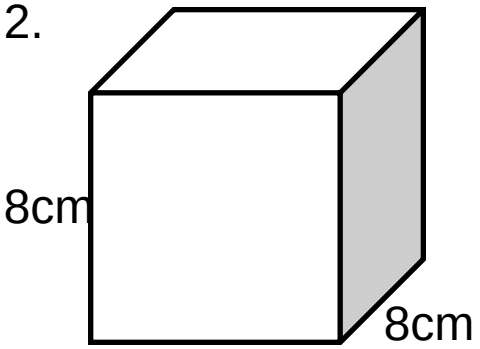


(ii) Calculate the **volume** of the following cuboids:

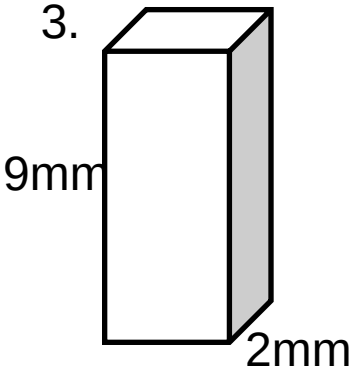
1.



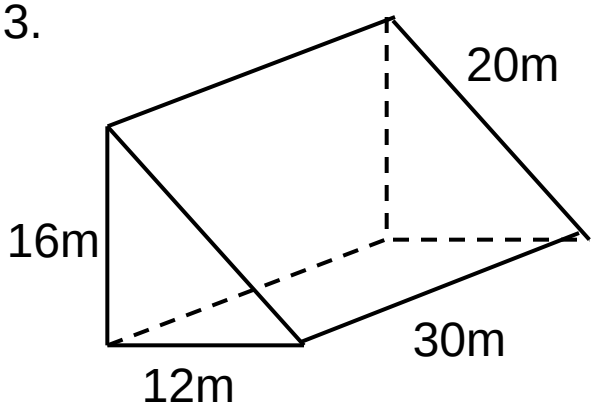
2.



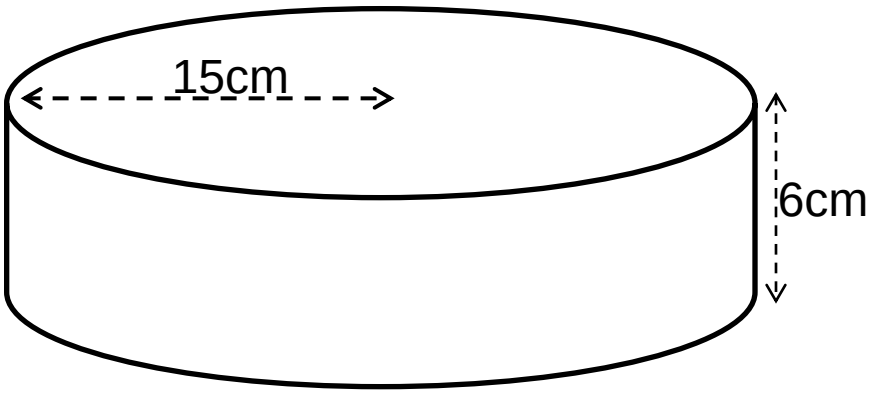
3.



3.



Extension : Calculate the total surface area of the cylinder below (including the base).



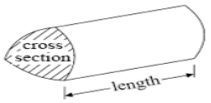
Credit: Daniel Burke

Name: …… **Date: ……**

Homework 3.1 – Volume

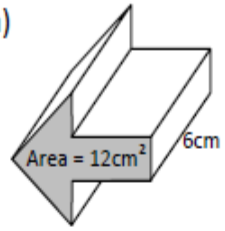
Week 1 Summer

C. Volume of prism = area of cross section × length.

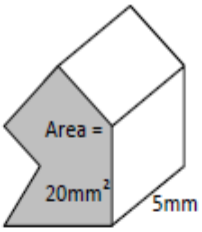


1. Find the volume of the following prisms

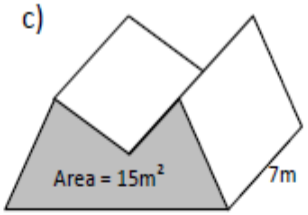
a)



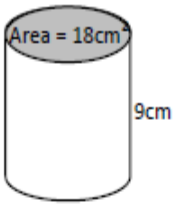
b)



c)

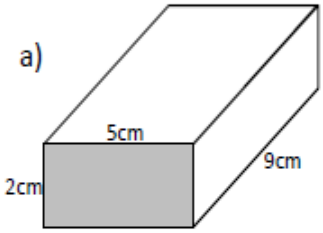


d)

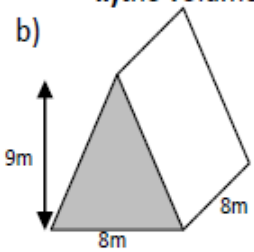


2. For the following prisms find **i)** the area of the cross section **ii)** the volume of the prism

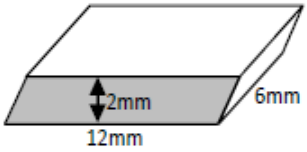
a)



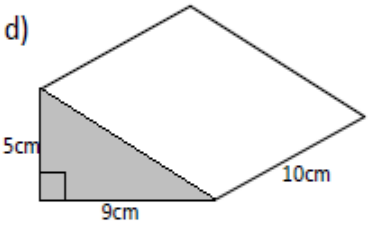
b)



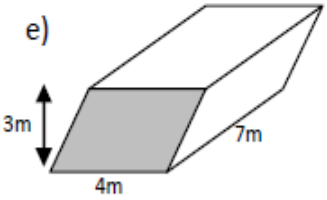
c)



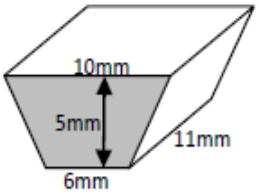
d)



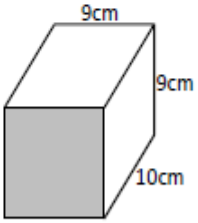
e)



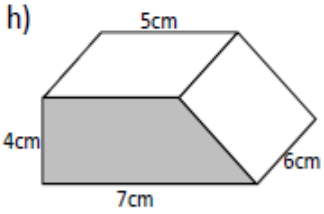
f)



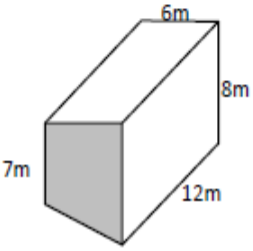
g)



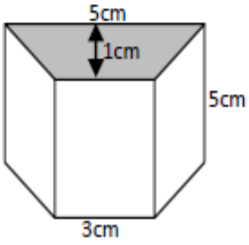
h)



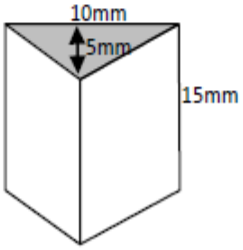
i)



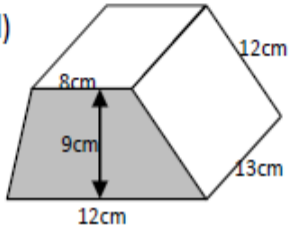
j)



k)



l)



Extension

A tank contains 32000 litres of water. The base of the tank measures 6.5m by 3.1m. Find the depth of water in the tank. Give your answer to one decimal place. [1 000l = 1 m^3

Name: …… **Date: ……**

Week 2 summer

Homework 3.2 – Volume 2

Mymaths.co.uk Homework

A. Volume – cubes and cuboids. (Question 1 and part 1 of question 2.

http://app.mymaths.co.uk/335-homework/volume-of-cuboids

B. Volume – cubes and cuboids (Do all questions).

http://app.mymaths.co.uk/335-homework/volume-of-cuboids

C. Volume - mixed

http://app.mymaths.co.uk/1233-resource/volume-and-3d-shapes-ow

Extension: Volume – prisms

http://app.mymaths.co.uk/336-homework/volume-of-prisms

Name: …… **Date: ……**

Week 3 summer

Homework 3.3 – Sequences

A.

Fill in the missing spaces and write down the rule that the sequence follows.

1). 3 6 9 12 _ _ 21

2). 4 8 12 16 _

3). 3 5 7 9 _ _ 15

4). 4 7 10 13 _

5). 6 11 16 21 _ _ 36

6). 9 13 17 21 _

7). 14 21 28 35 _ _ 56

8). 9 17 25 33 _

9). 7 18 29 40 _ _ 73

10). 25 31 37 43 _

1). i). Write down the number 4.
ii). Add 6 to it. This is the 2nd term.
iii). Add 6 to the 2nd term.
iv). Write down the answer and carry on.
vii). Stop when you have written 6 terms.

… … … … … …

2). i). Put down any 2 numbers. ii). Add them together to make a 3rd term.
iii). Add the 2nd and 3rd terms to make the 4th term. iv). Stop when you have 8 terms.

… … … … … … … …

3). i). Write down the number 50.
ii). Take 3 from it. This is the 2nd term.
iii). Take 3 from the 2nd term.
iv). Write down the answer and carry on.
vii). Stop when you have written 8 terms.

… … … … … … … …

Name: …… **Date: ……**

Week 3 summer

Homework 3.3 – Sequences

B.

1). i). Write down the number 4. ii). Add 6 to it. This is the 2nd term.
iii). Add 6 to the 2nd term. iv). Write down the answer and carry on.
vii). Stop when you have written 6 terms.

… … … … … … … …

2). i). Put down any 2 numbers. ii). Add them together to make a 3rd term.
iii). Add the 2nd and 3rd terms to make the 4th term. iv). Stop when you have 8 terms.

… … … … … … … …

3). i). Write down the number 50. ii). Take 3 from it. This is the 2nd term.
iii). Take 3 from the 2nd term. iv). Write down the answer and carry on.
vii). Stop when you have written 8 terms.

… … … … … … … …

2). A fence is made up out of wooden planks that can **either** be posts or bars.
a). Copy the pattern in your book and draw the **next two** diagrams.
b). Copy and complete the following table.

Number of posts	1	2	3	4	5	6
Number of bars	0	2				
Number of planks	1	4				

c). How many bars would there be if we used 12 posts ?
d). How many planks of wood would we need in total, if we have 15 posts in our fence ?

Write down a formula for the n^{th} term of these patterns. The first term is $n = 1$.

9, 15, 21, 27, 33, … n^{th} term = [2]

0, -5, -10, -15, -20, … n^{th} term = [2]

Name: …… **Date: ……**

Week 3 summer

Homework 3.3 – Sequences C.

2). A fence is made up out of wooden planks that can **either** be posts or bars.

a). Copy the pattern in your book and draw the **next two** diagrams.

b). Copy and complete the following table.

Number of posts	1	2	3	4	5	6
Number of bars	0	2				
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Write down a formula for the n^{th} term of these patterns. The first term is $n = 1$.

9, 15, 21, 27, 33, ... n^{th} term = [2]

0, -5, -10, -15, -20, ... n^{th} term = [2]

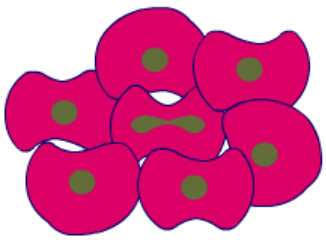
Q2 – Finding rules

Find the rules for these sequences.

-28, -56, -112, -224, ... start with , multiply each term by [2]

2, 1, 0.5, 0.25, ... start with , multiply each term by [3]

In a growing bacteria colony with 194 cells, every minute, each cell in the colony splits into two.



Find the rule to describe the scenario.

start with and multiply each term by [3]

How many cells does the colony have after 8 minutes? [2]

Extension: Find the nth term of the quadratic sequence:
-3, 3, 13, 27, 45, 67, …

Homework 3.4 – Graphs

Mymaths.co.uk Homework

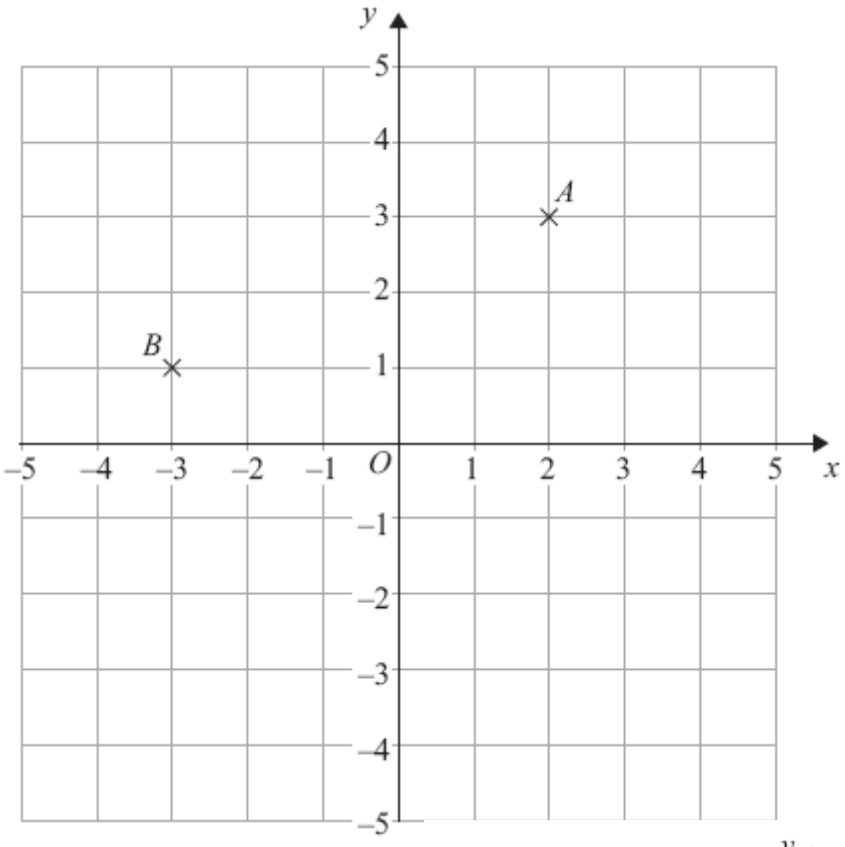
A. Coordinates http://app.mymaths.co.uk/182-homework/coordinates-2-negative

B. Graphs http://app.mymaths.co.uk/1765-homework/plotting-graphs-1-lines

C. Graphs http://app.mymaths.co.uk/1217-resource/coordinates-graphs-ow

More graphs http://app.mymaths.co.uk/1766-homework/plotting-graphs-2-lines

Name: …… **Date: ……**



Week 5 Summer

A.

1(a) (i) Write down the coordinates of the point *A*.

(..... , ...)

(ii) Write down the coordinates of the point *B*.

(..... , ...)

(b) On the grid, mark with a cross (×) the point (3, –4).
Label this point *C*.

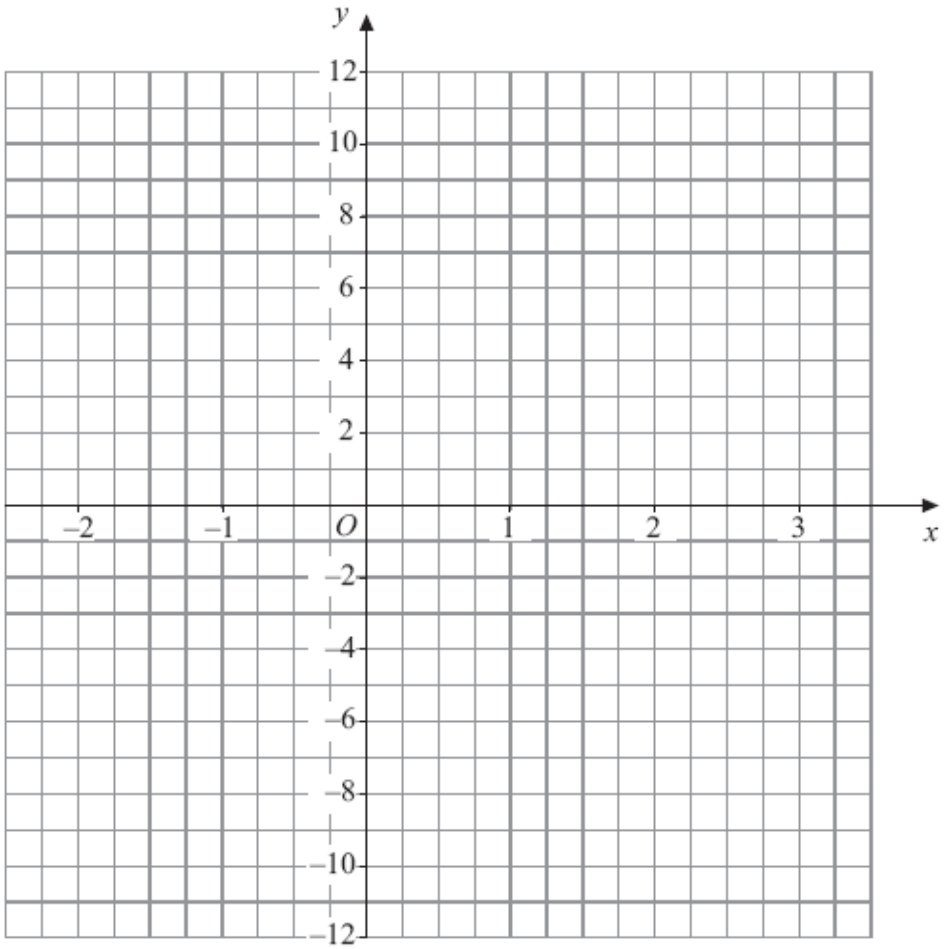
(1)

A.

2(a) Complete the table of values for $y = 2x$

(b) On the grid, draw the graph of $y = 2x$ values of x from −4 to 4.

x	*y*
-3	-6
-2	
-1	-2
0	
1	
2	4
3	

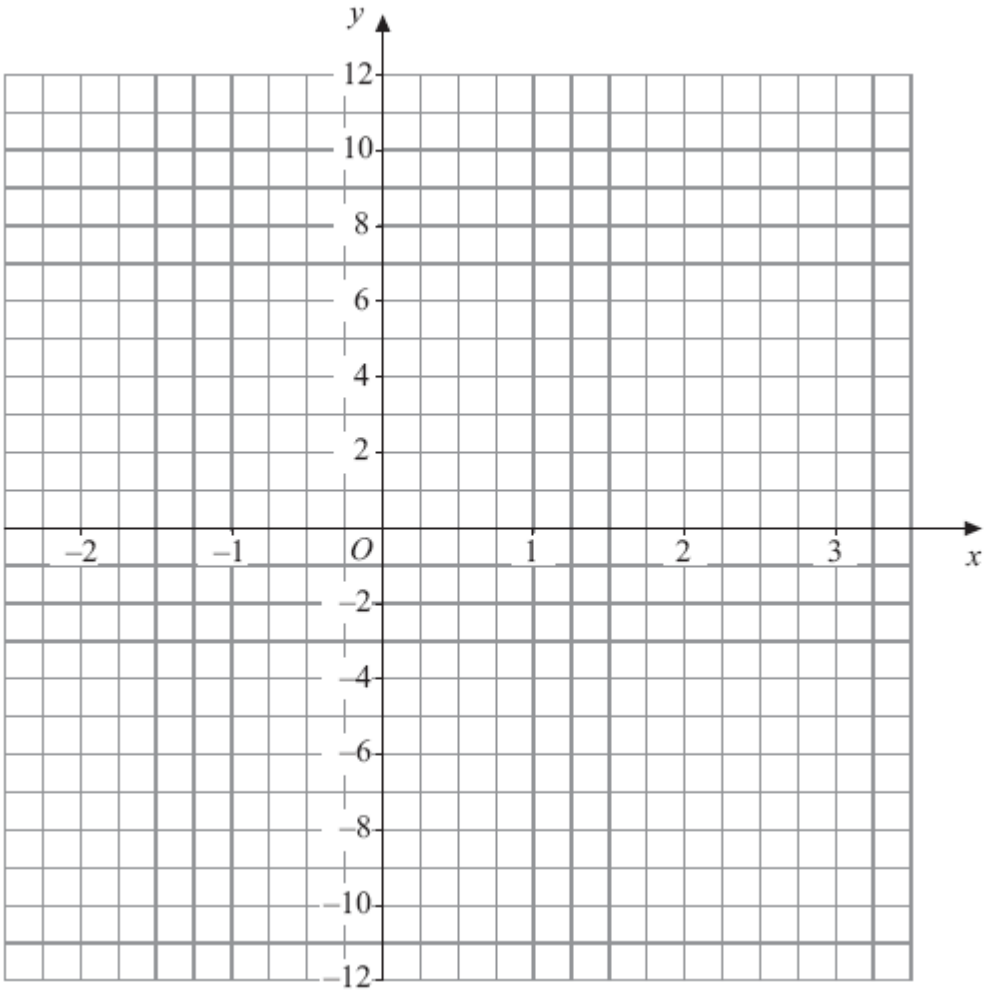


A.
3.

(a) Complete the table of values for $y = 4x - 3$

(b) On the grid, draw the graph of $y = 4x - 3$, for values of x from -2 to 3.

x	−2	−1	0	1	2	3
y	−11		−3			9



Name: …… **Date: ……**

Homework 3.5 – Graphs

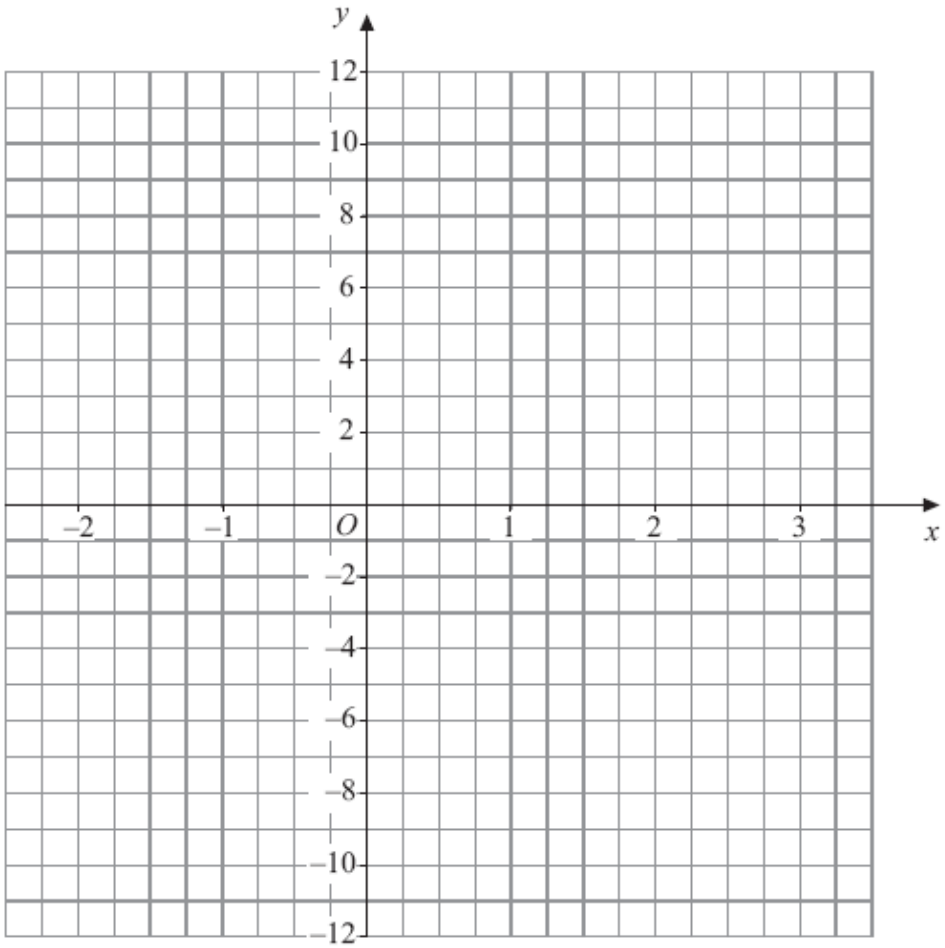
Week 5 Summer

B.

1(a) Complete the table of values for $y = 2x$

(b) On the grid, draw the graph of $y = 2x$ values of x from −4 to 4.

x	y
-3	-6
-2	
-1	-2
0	
1	
2	4
3	

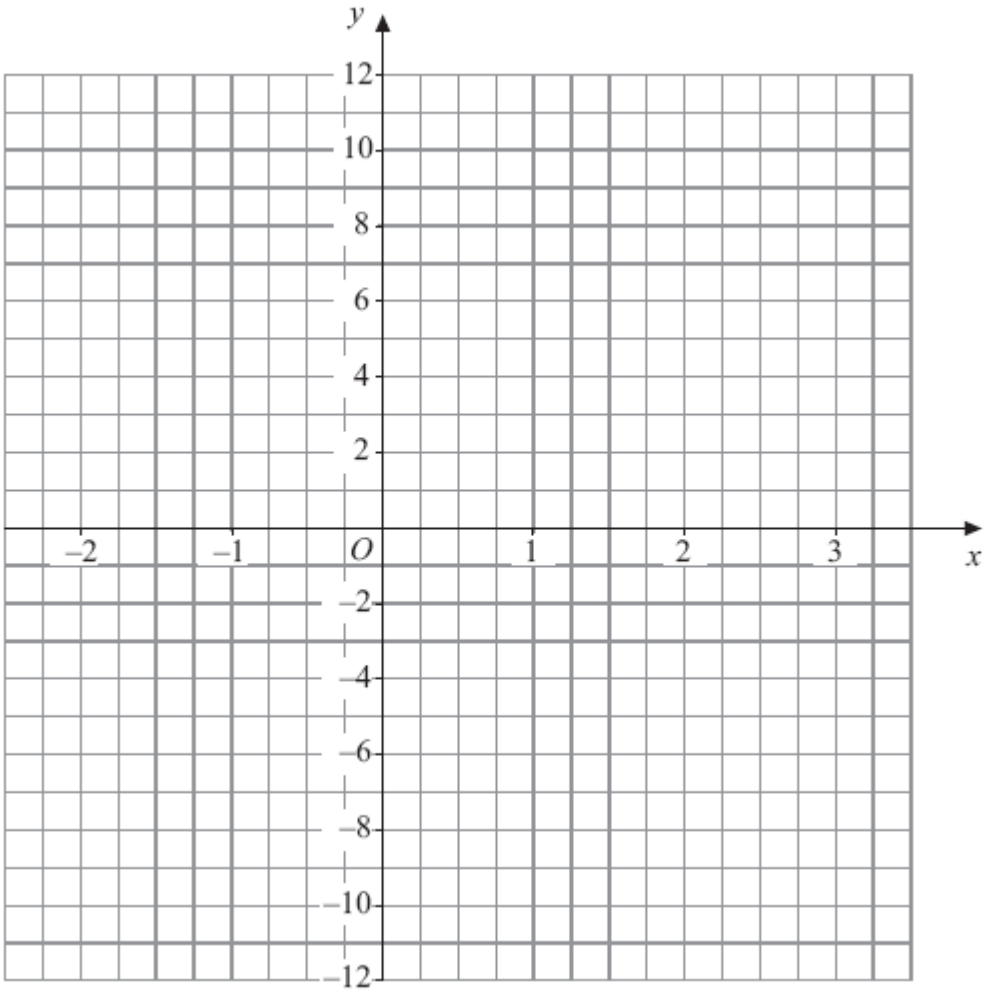


B.
2.

(a) Complete the table of values for $y = 4x - 3$

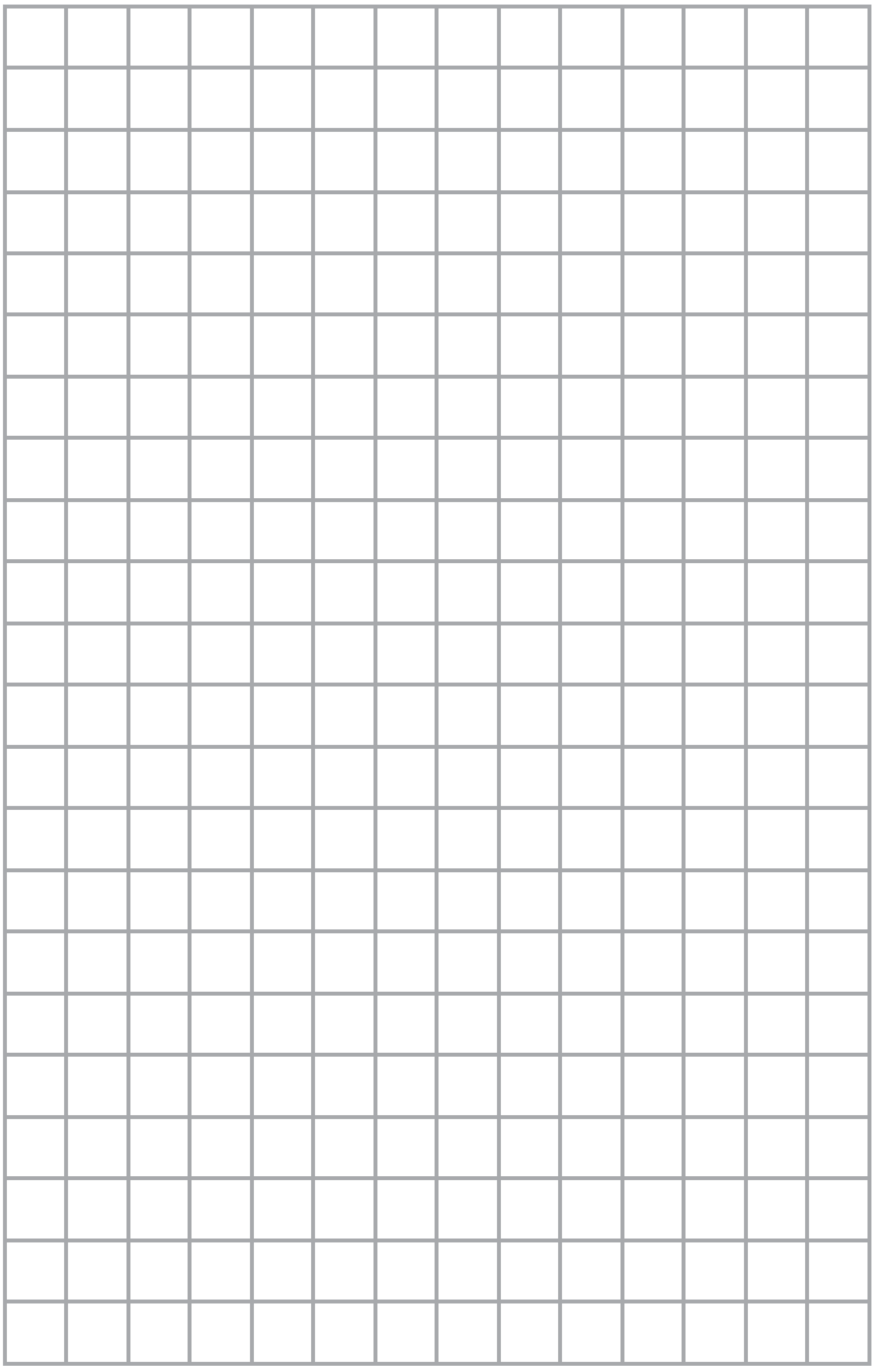
(b) On the grid, draw the graph of $y = 4x - 3$, for values of x from −2 to 3.

x	−2	−1	0	1	2	3
y	−11		−3			9



B.
3.

On the grid, draw the graph of $y = 3x + 2$ for values of x from -2 to 2.



Name: …… **Date: ……**

Homework 3.5 – Graphs

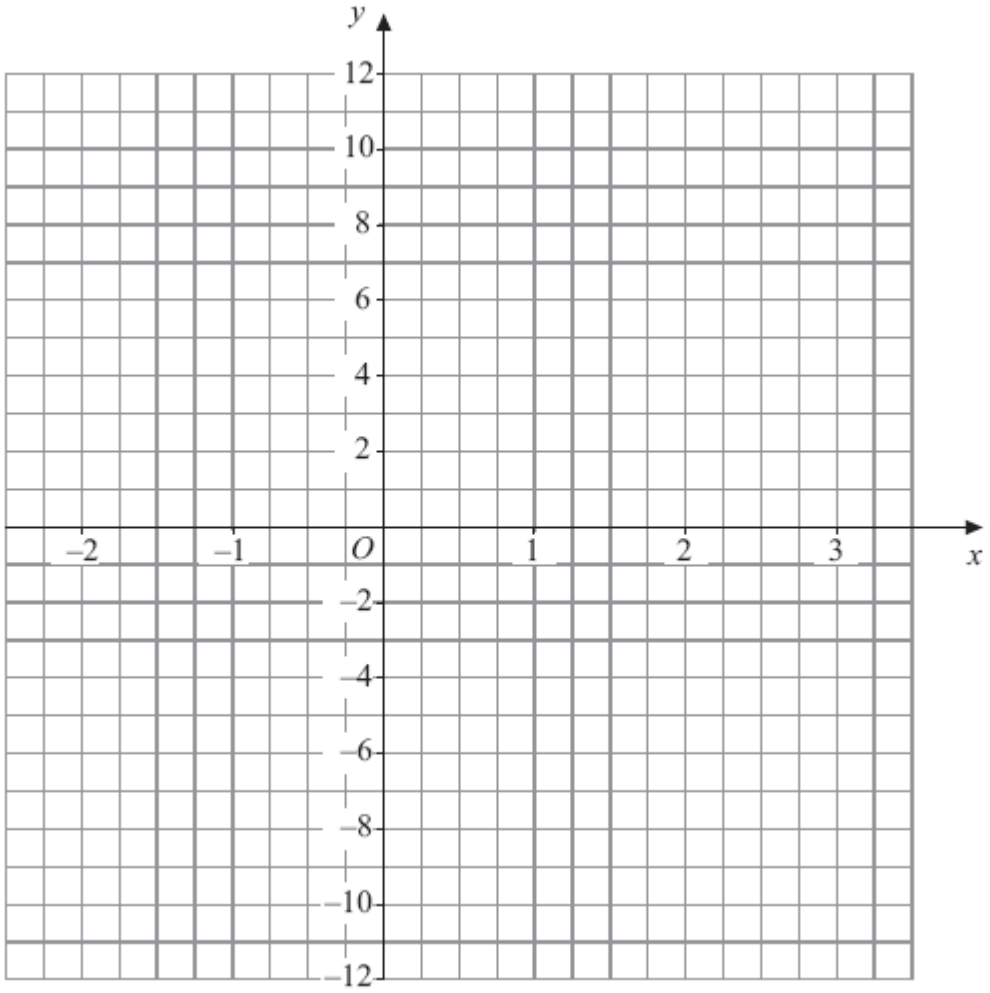
Week 5 Summer

C. 1.

(a) Complete the table of values for $y = 4x - 3$

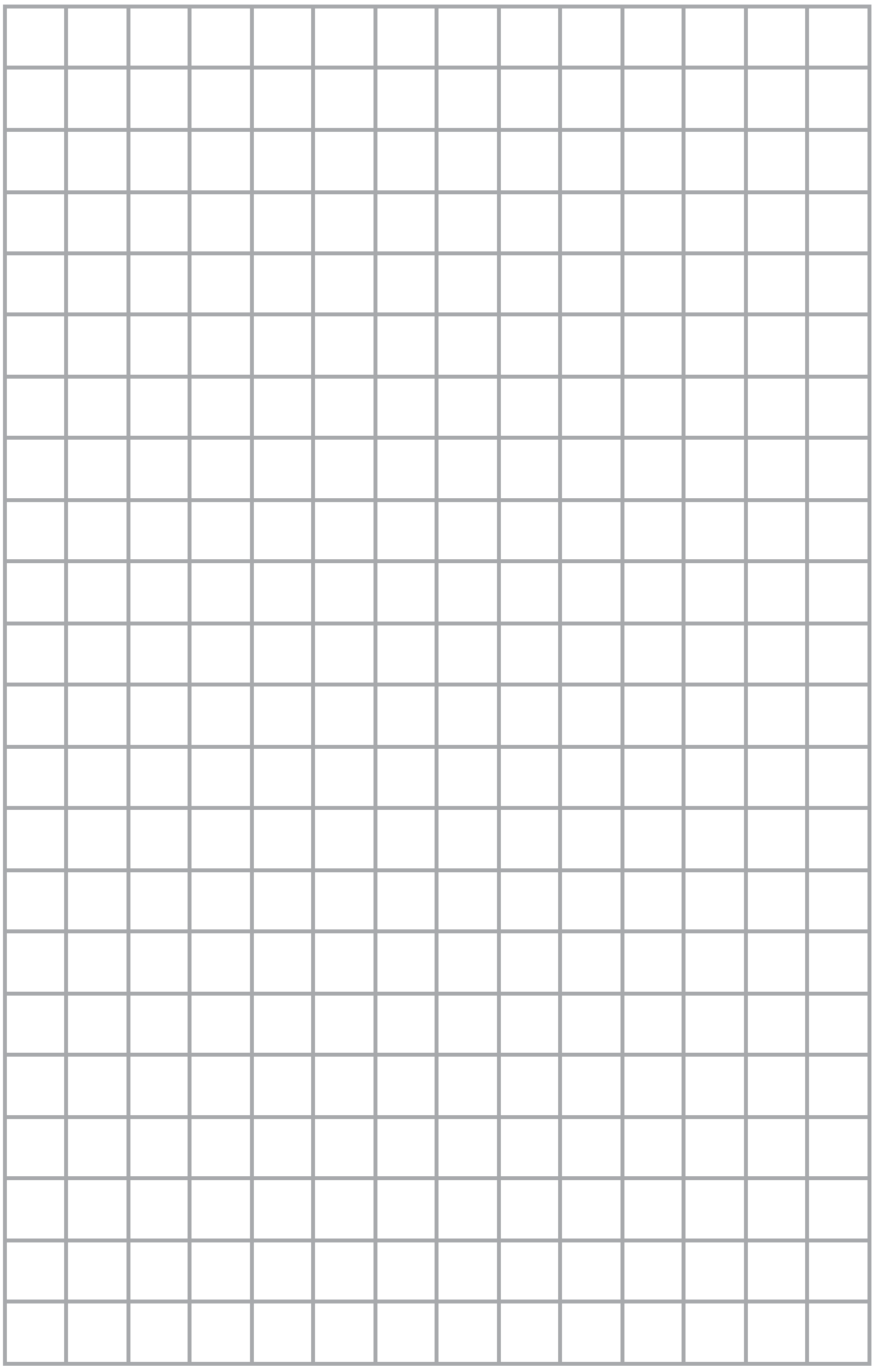
(b) On the grid, draw the graph of $y = 4x - 3$, for values of x from −2 to 3.

x	−2	−1	0	1	2	3
y	−11		−3			9



C. 2.

On the grid, draw the graph of $y = 3x + 2$ for values of x from -2 to 2.

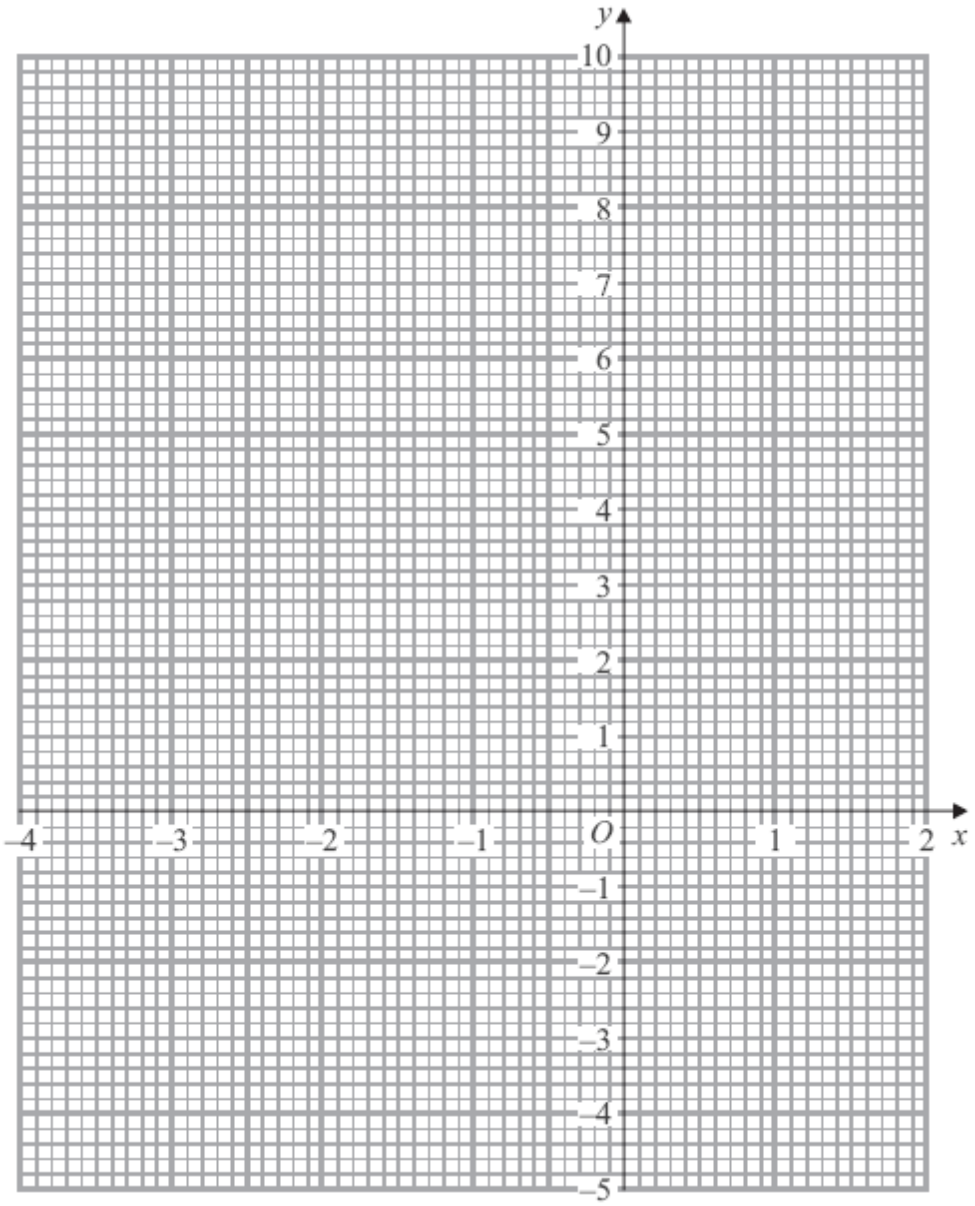


C. 3.

(a) Complete the table of values for $y = x^2 + x - 3$

(b) On the grid below, draw the graph of $y = x^2 + x - 3$ for values of x from -4 to 2.

x	–4	–3	–2	–1	0	1	2
y	9		–1	–3			3



Homework 3.6 – Pythagoras' theorem (top sets)
Or
expressing perimeter, area and volume as expressions

Mymaths.co.uk Homework

Extension
Pythagoras' theorem

http://app.mymaths.co.uk/300-homework/pythagoras-theorem

A. Simplifying

http://app.mymaths.co.uk/169-homework/simplifying-1

B. Expressions and formulae 1

http://app.mymaths.co.uk/202-homework/rules-and-formulae

C. Expressions and formulae 2

http://app.mymaths.co.uk/1206-resource/sequences-formulae-ow

Name: ……. **Date: ……..**

Homework 3.7 – Expressions

Week 7 Summer term

A,

To find the next term, **add** the two bricks below it.
Copy out each pyramid and fill in the missing terms.

1).

2a	a	5a

2).

y	4y	7y

3).

8p	5p	9p

4).

9k	2k	5k	k

5).

3q	5q	12q	2q

6).

7s	5s	15s	4s

7).

7d	8d	
	5d	

8).

	23h	
13h		
4h		

9).

	29r	
	16r	
6r		

10).

	32c		
	17c		
	8c		
6c		7c	

11).

	32g		
	17g		
		10g	
	5g		8g

12).

	72v		
	41v		
	22v		
2v			4v

Name: …… Date: ……..

Homework 3.7 – Expressions

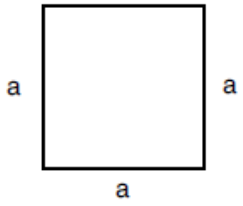
Week 7 Summer term

B. 1.

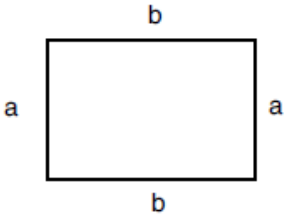
Perimeters and Algebra.

Write down an equation for the perimeter, P, of each of these shapes.
Leave the answer in its simplest form.

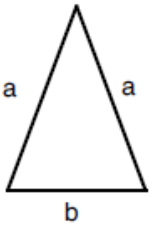
1).



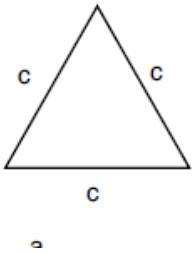
2).



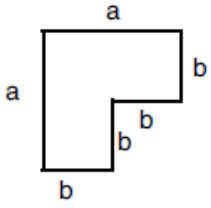
3).



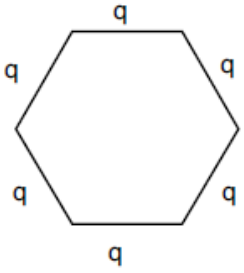
4).



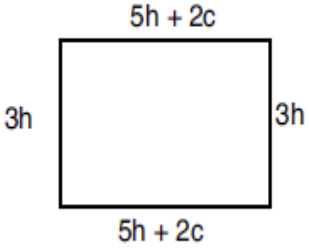
5).



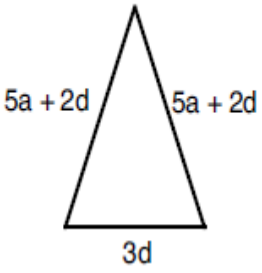
6).



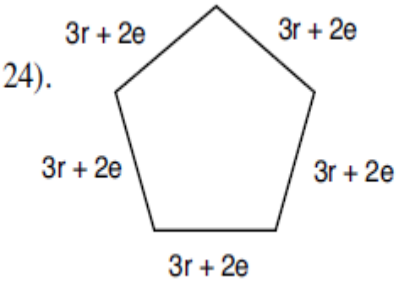
22).



23).



24).



B. 2.

For questions 1, 2, 5 and 22, write down the expression which represents the area:

1. Area =	2. Area =
5. Area =	22. Area =

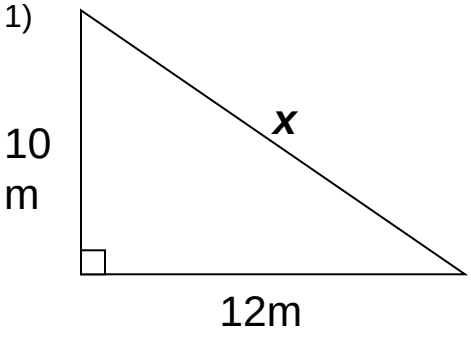
Name: …… Date: ……..

Homework 3.7 – Pythagoras' theorem

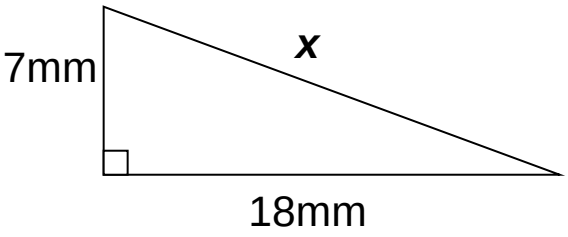
Week 7 Summer term

Calculate the value of x in each question and show all your workings. Credit:JCasey

1)



2)

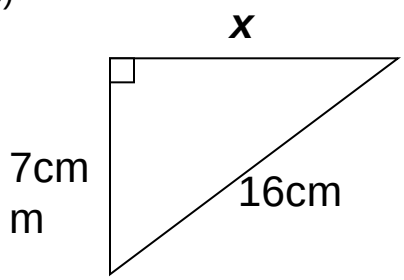


…… ……

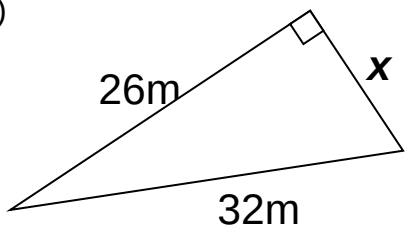
…… ……

…… ……

3)



4)



…… ……

…… ……

…… ……

5)

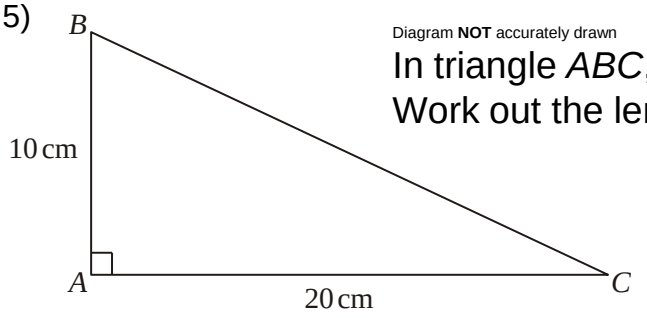


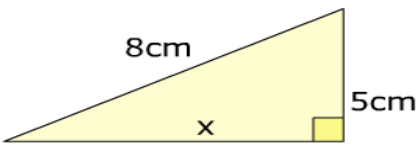
Diagram **NOT** accurately drawn

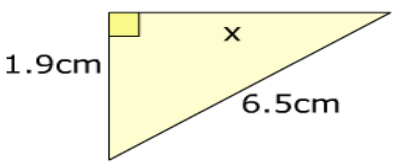
In triangle *ABC*, *AB* = 10 cm, *AC* = 20 cm, angle *BAC* = 90°

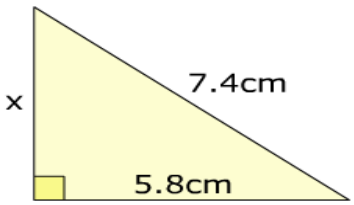
Work out the length of *BC*.

…… cm

6) Calculate the value of x in each question and show all your workings.







Name: …… **Date: ……..**

Homework 3.8 – Fractions

Week 8Summer term

A

1. Find the following:

(a) $\frac{1}{6}$ of 72 = ……. (b) $\frac{1}{4}$ of 52 = ……. (c) $\frac{1}{8}$ of 96 = …….

(d) $\frac{1}{7}$ of 84 = ……. (e) $\frac{1}{3}$ of 69 = ……. (f) $\frac{1}{9}$ of 108 = …….

(g) $\frac{3}{8}$ of 72 = ……. (h) $\frac{5}{6}$ of 90 = ……. (i) $\frac{7}{9}$ of 72 = …….

2. Find the following amounts.

$\frac{2}{3}$ of 24 = ☐ [2]

$\frac{4}{5}$ of 20 = ☐ [2]

$\frac{5}{6}$ of 18 = ☐ [2]

$\frac{3}{7}$ of 14 = ☐ [2]

$\frac{4}{9}$ of 18 = ☐ [2]

$\frac{7}{10}$ of 40 = ☐ [2]

3. Write these improper fractions as mixed numbers.

$\frac{29}{5}$ = ☐ [1]

$\frac{9}{4}$ = ☐ [1]

$\frac{7}{3}$ = ☐ [1]

Write these mixed numbers as improper fractions.

$7\frac{1}{2}$ = ☐ [1]

$2\frac{1}{7}$ = ☐ [1]

$4\frac{2}{9}$ = ☐ [1]

Fill in the missing number.

$\frac{1}{2} = \frac{\square}{8}$

$\frac{2}{8} = \frac{\square}{4}$

$\frac{\square}{5} = \frac{8}{10}$

$\frac{\square}{3} = \frac{2}{6}$

4.

A school has 1200 pupils.
575 of these pupils are girls.

$\frac{2}{5}$ of the girls like sport.

$\frac{3}{5}$ of the boys like sport.

Work out the total number of pupils in the school who like sport. ……

Name: …… Date: ……..

Homework 3.8 – Fractions

Week 8Summer term

B

1. Find the following:

(a) $\frac{1}{6}$ of 72 = ……. (b) $\frac{1}{4}$ of 52 = ……. (c) $\frac{1}{8}$ of 96 = …….

(d) $\frac{1}{7}$ of 84 = ……. (e) $\frac{1}{3}$ of 69 = ……. (f) $\frac{1}{9}$ of 108 = …….

(g) $\frac{3}{8}$ of 72 = ……. (h) $\frac{5}{6}$ of 90 = ……. (i) $\frac{7}{9}$ of 72 = …….

2. Write these improper fractions as mixed numbers.

$\frac{29}{5}$ = ☐☐ [1]

$\frac{9}{4}$ = ☐☐ [1]

$\frac{7}{3}$ = ☐☐ [1]

Write these mixed numbers as improper fractions.

$7\frac{1}{2}$ = ☐ [1]

$2\frac{1}{7}$ = ☐ [1]

$4\frac{2}{9}$ = ☐ [1]

Fill in the missing number.

$\frac{1}{2} = \frac{\square}{8}$

$\frac{2}{8} = \frac{\square}{4}$

$\frac{\square}{5} = \frac{8}{10}$

$\frac{\square}{3} = \frac{2}{6}$

3. A school has 1200 pupils.
575 of these pupils are girls.

$\frac{2}{5}$ of the girls like sport.

$\frac{3}{5}$ of the boys like sport.

Work out the total number of pupils in the school who like sport. ……

4. There are 700 students in a college.
All of the students are 16 years old, 17 years old or 18 years old.
$\frac{1}{10}$ of the students are 16 years old.
$\frac{1}{5}$ of the students are 18 years old.
Work out how many of the students are 17 years old.

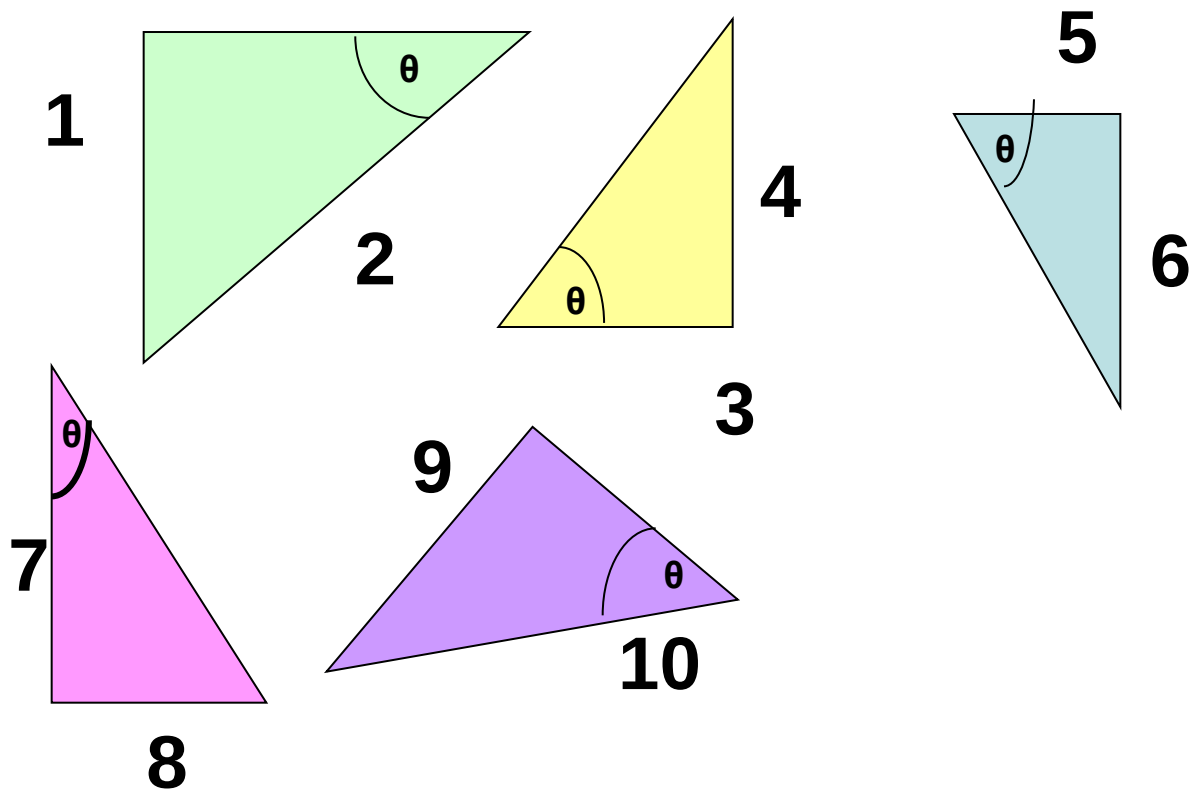
……

Name: …… **Date: ……..**

Homework 3.8 – Trigonometry

Week 8Summer term

Write down the name of the sides 1 to 10 with reference to angle θ.
All the triangles are right angled.
Choose from hypotenuse, opposite, adjacent.



Write down the values of the following to 4 decimal places):

1. Sin 27º = ……. 2. Sin 83º = ……. 3. Sin 6º = …….

4. Cos 27º = ……. 5. Cos 2º = ……. 6. Cos 77º = …….

7. Tan 27º = ……. 8. tan 11º = ……. 9. tan 68º = …….

10. Sin 153º = …… 11. Cos 103º = …… 12. Tan 180º = …….

Write down what you notice.

……

……

……

……

Week 9 Summer

Homework 3.9 – Trigonometry (top sets) Or Fractions (other sets)

Mymaths.co.uk Homework

A. Fractions Adding and subtracting

http://app.mymaths.co.uk/91-homework/adding-subtracting-fractions

B. Fractions Multiplying and dividing intro

http://app.mymaths.co.uk/92-homework/multiply-divide-fractions-intro

Fractrions – multiplying

http://app.mymaths.co.uk/93-homework/multiplying-fractions

Fractrions – dividing

http://app.mymaths.co.uk/94-homework/dividing-fractions

Trigonometry - sides

http://app.mymaths.co.uk/322-homework/trig-missing-sides

Homework 3.10 – Trigonometry (top sets)
Or
Fractions (other sets)

Week 10 Summer

Mymaths.co.uk Homework

A. Fractions
Adding and subtracting

http://app.mymaths.co.uk/91-homework/adding-subtracting-fractions

B. Fractions
Multiplying and dividing intro

http://app.mymaths.co.uk/92-homework/multiply-divide-fractions-intro

Fractrions – multiplying

http://app.mymaths.co.uk/93-homework/multiplying-fractions

Fractrions – dividing

http://app.mymaths.co.uk/94-homework/dividing-fractions

Trigonometry - angles

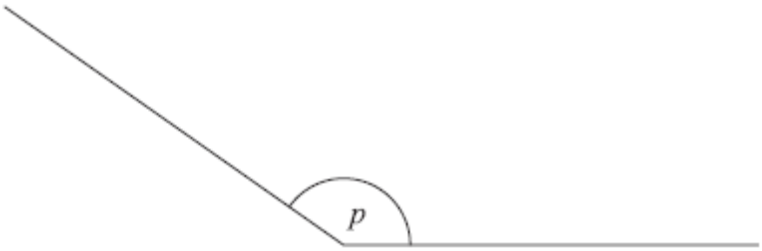
http://app.mymaths.co.uk/321-homework/trig-missing-angles

Homework 3.11 – Study skills
End of year KA prep.

Homework 3.12 – Angles reasoning

A. 1. (a) Measure the length of the line *XY*.

.....



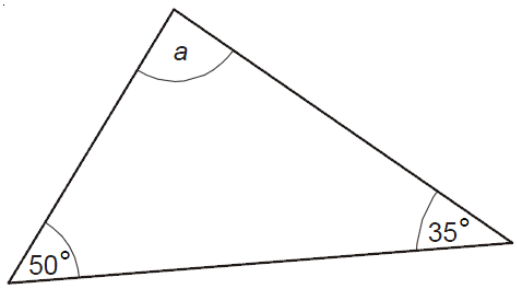
(b) What type of angle is angle *p*?

.....

(c) Measure the size of angle *p*.

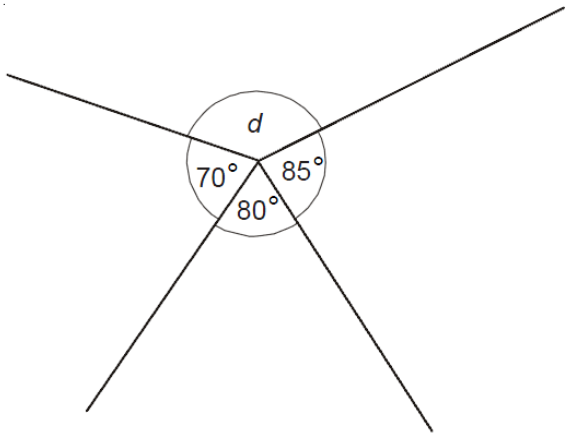
..... °

2. Work out the missing angle a



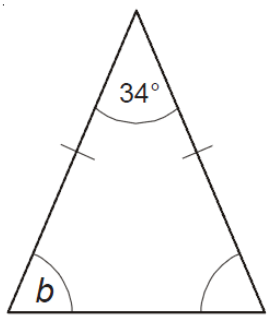
Reason: …….

3. Work out the missing angle d



Reason: …….

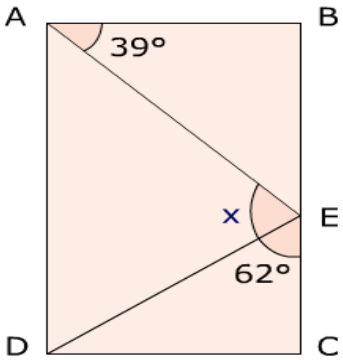
4. Work out the missing angle b



Reasons: 1. …….
2. …….

5. Work out the missing angle x

ABCD is a rectangle.

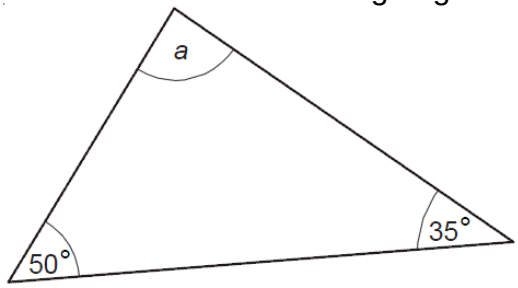


Reasons: 1. …….
2. …….

Homework 3.12 – Angles reasoning

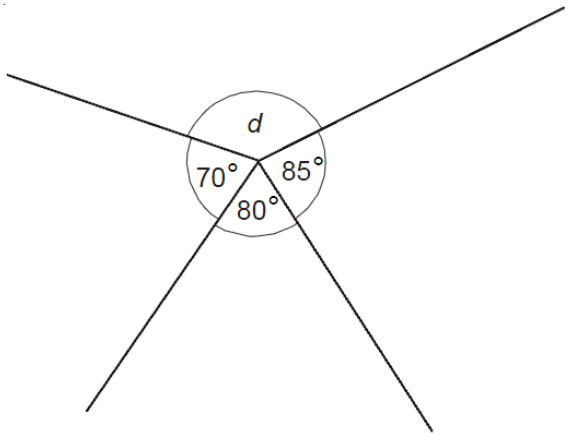
B.

1. Work out the missing angle a



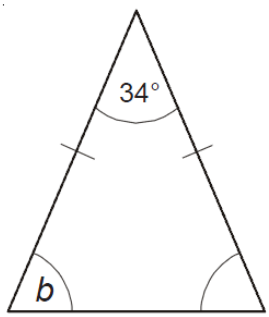
Reason: ……

2. Work out the missing angle d



Reason: ……

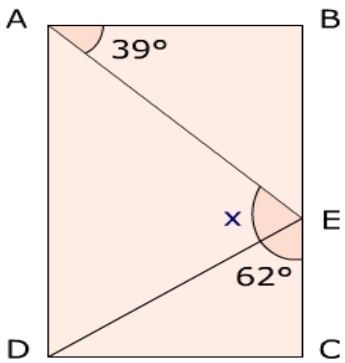
3. Work out the missing angle b



Reasons: 1. ……
2. ……

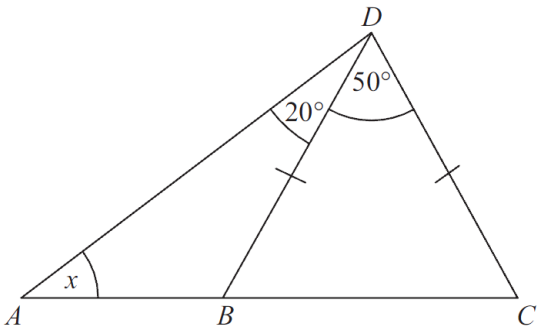
4. Work out the missing angle x

ABCD is a rectangle.



Reasons: 1. ……
2. ……

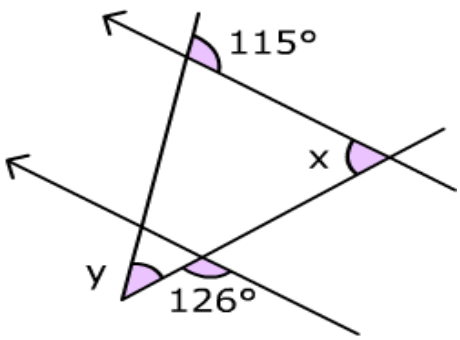
5.



ABC is a straight line. BC = CD, Angle BDC = 50º, Angle ADB = 20. Work out the size of the angle marked x.

Reasons: 1. ……
2. ……

6.

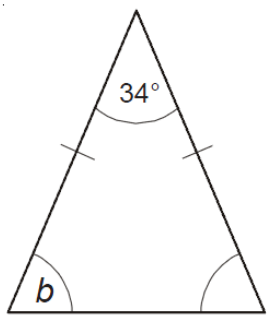


Calculate x and y.

Reasons: 1. ……
2. ……
3. ……

Homework 3.12 – Angles reasoning

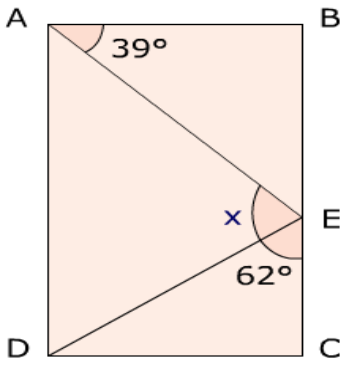
C. 1. Work out the missing angle b



Reasons: 1. ……
2. ……

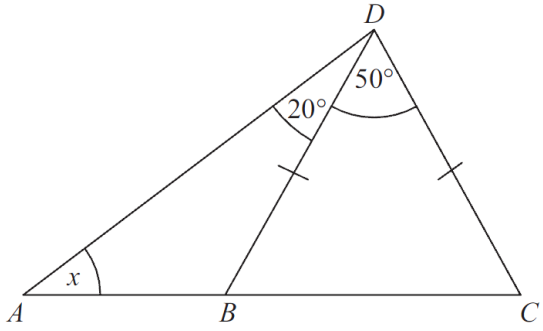
2. Work out the missing angle x

ABCD is a rectangle.



Reasons: 1. ……
2. ……

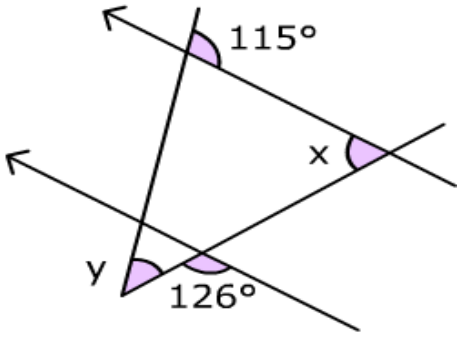
3.



ABC is a straight line. BC = CD, Angle BDC = 50º, Angle ADB = 20. Work out the size of the angle marked x.

Reasons: 1. ……
2. ……

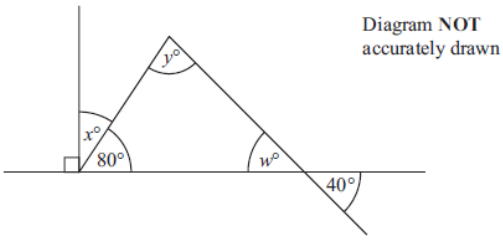
4.



Calculate x and y.
Reasons: 1. ……
2. ……
3. ……

Credit: Japleen

5.



(i) Write down the value of *w*.

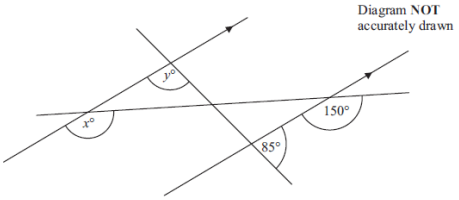
.....

(ii) Give a reason for your answer.

.....

.....

6.



(a) Find the value of *x*.

.....

(b) Find the value of *y*.
Give reasons for your answer.

Homework 3.13 – End of year review – revisit some of these topics or improve areas from your end of year KA.

A. Volume – cubes and cuboids. (Question 1 and part 1 of question 2.

http://app.mymaths.co.uk/335-homework/volume-of-cuboids

B. Volume – cubes and cuboids (Do all questions).

http://app.mymaths.co.uk/335-homework/volume-of-cuboids

C. Volume - mixed

http://app.mymaths.co.uk/1233-resource/volume-and-3d-shapes-ow

A. Coordinates

http://app.mymaths.co.uk/182-homework/coordinates-2-negative

B. Graphs

http://app.mymaths.co.uk/1765-homework/plotting-graphs-1-lines

Extension
Pythagoras' theorem

http://app.mymaths.co.uk/300-homework/pythagoras-theorem

http://app.mymaths.co.uk/1217-resource/coordinates-graphs-ow

C. Graphs

More graphs

http://app.mymaths.co.uk/1766-homework/plotting-graphs-2-lines

A. Simplifying

http://app.mymaths.co.uk/169-homework/simplifying-1

B. Expressions and formulae 1

http://app.mymaths.co.uk/202-homework/rules-and-formulae

C. Expressions and formulae 2

http://app.mymaths.co.uk/1206-resource/sequences-formulae-ow