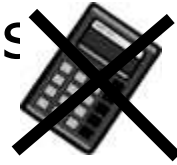


GCSE Mathematics  
 Non Calculator  
 Foundation Tier  
 Free Practice Set 1  
 1 hour 30 minutes



**ANSWERS**

Marks shown in brackets for each question (2)

Grade Boundaries

C	D	E	F	G
76	60	47	33	20

Legend used in answers

Green Box - Working out

5b means five times b  
 $b = -3$  so  $5 \times -3 = -15$

Red Box and ✓ - Answer

48 % ✓

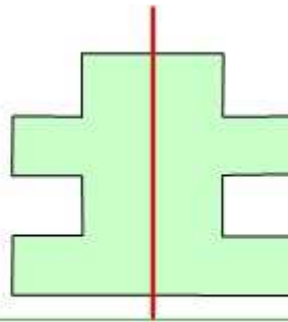
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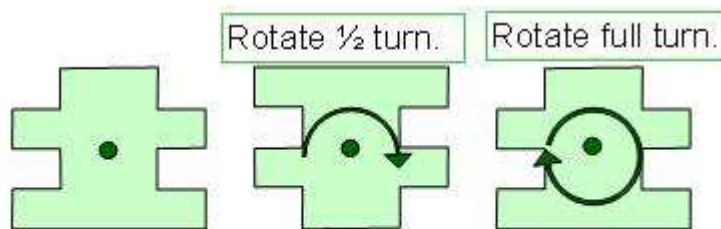
1. a) Draw a line of symmetry on the shape below

(1)



A line of symmetry divides a shape into two so each half is a mirror image of the other.

- b) What is the order of rotational symmetry for the shape



The shape only appears the same once when we rotate it a full turn.

Order of rotational symmetry means how many different position look the same when you rotate the shape one full turn (360 degrees) This shape must be rotated a full 360 degree turn before it looks the same so it has **one** order of rotational symmetry

1

(1)

2. A number pattern is shown below

Pattern number	Pattern	Total
1	6 =	6
2	6 + 5 =	11
3	6 + 5 + 5 =	16
4	6 + 5 + 5 + 5 ✓	21 ✓
5	6 + 5 + 5 + 5 + 5 ✓	26 ✓

Add 5  
Add 5

a) Complete the table

(2)

b) What is the expression in terms of  $n$ , for the total in pattern number  $n$ .

An expression means a formula that tells you what the 6<sup>th</sup> or 8<sup>th</sup> or  $n^{\text{th}}$  number in the pattern is.

The total goes up by 5 each time so it's like the 5 times table.  
 We can write that as  $5n$  (if  $n = 1$   $5n = 5$ , if  $n=2$ ,  $5n = 10$ , etc)

But it starts at 6. To make the 5 times table start at 6 we have to add 1  
 So our expression is  $5n + 1$   
 Total =  $5n + 1$

Test it: for Pattern 6,  $n = 6$ . Total =  $5 \times 6 + 1 = 30 + 1 = 31$

$5n + 1$  ✓ (2)

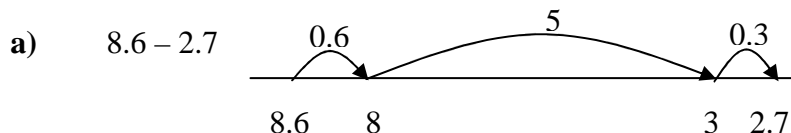
c) Here is another sequence. Complete the missing terms

29 ✓  
 ..... 23 17 11 5 -1 ✓ -7 ✓  
 .....

This sequence changes by 6 each time.  
 It goes *up* by 6 as we move to the *left* and *down* by 6 as we move to the *right*.  
 So the term to left of 23 =  $23 + 6 = 29$   
 Term to right of 5 =  $5 - 6 = -1$   
 Term to right of -1 =  $-1 - 6 = -7$

(2)

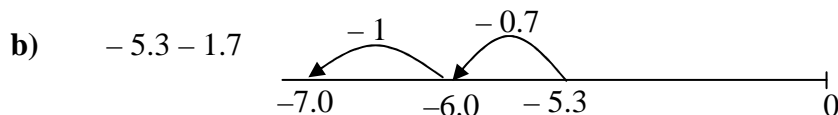
3. What is



A subtraction is the same as the difference between two points.  
 You can use a number line. Start at 8.6 and work out how to get to 2.7  
 You need a jump from 8.6 to 8 = 0.6, from 8 to 3 = 5 and from 3 to 2.7 = 0.3  
 Total jump =  $0.6 + 5 + 0.3 = 5.9$ .

**5.9** ✓

(1)



We know that  $-1.7 = -0.7 - 1$ . Start at a negative point  $-5.3$ .  
 Subtract  $-0.7$  to go more negative to  $-6.0$ .  
 Subtract  $-1$  to go more negative to  $-7.0$ .

**-7.0** ✓

(1)

c)  $5 \times 3 + 4$

Remember to do the operations (add, multiply) in the correct order  
 BIDMAS  $\rightarrow$  brackets (1<sup>st</sup>), indices, divide, multiply, add, subtract.  
 So do the multiplication first then the addition.

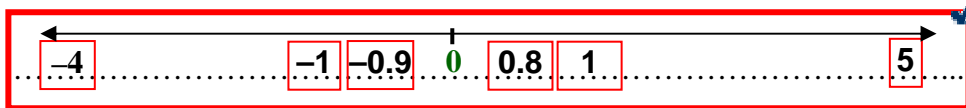
- i  $5 \times 3 = 15$
- ii  $15 + 4 = 19$

**19** ✓

(1)

d) Arrange these numbers from *smallest to largest*

5                    -1                    -0.9                    -4                    1                    0.8



Place the numbers either side of the zero point. The larger the negative or positive number is, the further away it is from the zero

(1)

4. a) Estimate  $14.1 \times 99$

Estimate 99 as 100 and 14.1 as 14.

Then we have  $14 \times 100 = 1400$  (add two zeros to the end when  $\times 100$ )

1400 ✓

(1)

b) Estimate :  $\frac{14.9 \times 40.1}{9.7 \times 3.1}$

If we ROUND each number to the nearest whole number we get:

$14.9 \times 40.1$  is  $15 \times 40$  and  $9.7 \times 3.1$  is  $10 \times 3$

So we have  $\frac{15^5 \times 40}{10 \times 3^1}$  which cancels nicely to  $\frac{5 \times 4}{1 \times 1} = 20$

20 ✓

(2)

5. a) What is two hundred metres in kilometres

Two hundred metres is 0.2 km.  
1 km = 1000m so we divide by 1000 to convert m into km  
When we divide by 1000 we move the decimal point three places to the left.  
200 m  $\rightarrow$  0.200 km

**0.2** ✓  
.....km  
(1)

- b) What is six centimetre in metres

Six centimetres is 0.06 m.  
1 m = 100cm so we divide by 100 to convert cm into m  
When we divide by 100 we move the decimal point two places to the left.  
6 cm  $\rightarrow$  0.06 m

**0.06** ✓  
.....m  
(1)

- c) What is 425 grams in kilograms

There are 1000 grams in 1 kilogram so to convert grams to kg we divide by 1000. That means we move the decimal point three places to the left. 425 grams  $\rightarrow$  0.425kg

**0.425** ✓  
.....kilograms  
(1)

- d) What is 2.866 grams correct to 2 decimal places?

The 2<sup>nd</sup> decimal place is the second number after the decimal point.  
2 decimal places means we have to write the number as 2.86 or 2.87.  
To decide we look at the 3<sup>rd</sup> decimal number to see if it is closer to 0 or 10  
6 is closer to 10 so our number is closer to 2.87 than 2.86.

**2.87** ✓  
.....grams  
(1)

6. a) Complete the table below

You should memorise  $\frac{1}{4} = 25\%$  ,  $\frac{1}{2} = 50\%$   $\frac{3}{4} = 75\%$

Fraction	%	Decimal
$\frac{3}{4}$	75%	0.75
$\frac{3}{10}$	30%	0.30
$\frac{1}{4}$	25%	0.25

Any percentage that ends in zero is a number of tenths.  
10% =  $\frac{1}{10}$  , 30% =  $\frac{3}{10}$

To convert % to decimal just move the decimal place to the left two places e.g. 67% = 0.67.  
To convert decimal to % do the opposite

(3)

- b) What is 24% as a fraction giving your answer in its simplest form.

24 % means 24 out of 100 or  $\frac{24}{100}$

Simplest form means we have to make the 24 and 100 smaller if we can  
Do this by finding the biggest number (factor) that goes into both.

2 works and so will 4, which is the biggest factor  
4 goes into 24, six times and it goes into 100, twenty five times.  
So the simplest form is  $\frac{6}{25}$

$\frac{6}{25}$

(1)

- c) Put these values in order starting with the smallest:

0.33      32%       $\frac{3}{10}$

To compare these values we need to convert them all to the same type of value.  
Lets make them into decimals.

As we showed above,  $\frac{3}{10} = 30\% = 0.3$  and  $32\% = 0.32$

$\frac{3}{10}$     32%    0.33

(1)

- d) What is 80% of 80

10% of a number is  $\frac{1}{10}$  of that number. So 10% of 80 = 8.  
80% is  $8 \times 10\%$  which is  $8 \times 8 = 64$

64

(1)

7. An oil tanker weighs 287 880 tons.



a) What is 287 880 in words.

To show the thousands more easily split the number up into blocks of 3 numbers.

So 2 8 7 8 8 0 is 2 8 7, 8 8 0

Two hundred  
and  
eighty  
seven  
thousands.

Eight hundred  
and  
eighty

**Two hundred and eighty seven thousand eight hundred and eighty**

(1)

b) What is 287 880 correct to three significant figures.

Significant figures is similar to rounding, to get an approximate answer

The first significant figure of a number is the first digit which is not a zero.  
In this case it is 2

The first three significant figures are 287

We have to decide whether we have 287 000 or 288 000  
To do this we look at the next (4<sup>th</sup>) significant figure which is 8.

Is this nearer to 0 or 10?

8 is nearest 10 so to 3 significant figures the number is 288 000

**288 000**

(1)

c) The engines on the tanker needed 100 gallons of fuel every minute.  
How many gallons would they use in an hour at this rate?

There are 60 minutes in an hour.

If we use 100 gallons in a minute

we use  $100 \times 60$  gallons in an hour = 6000

when you multiply by 100 put two zeros after the number or move the decimal point two places to the right.

**6,000**

(2)



- d) The tanker travelled a distance of 234 miles in 9 hours.  
What was its speed in miles per hour.

We travel 234 miles in 9 hours. Miles per hour = how far we travel in 1 hour  
To find how many miles we travel in one hour we do  $234 \div 9$

Lay out your division like this  $9 \overline{) 234}$

Will 9 go into 2? - NO  $9 \overline{) \color{red}2}34$

Try the next two digits  
Will 9 go into 23? YES  $9 \overline{) \color{red}23}4$

How many times will 9 go into 23?  
Twice:  $2 \times 9 = 18$   
Put 2 at the top.  $9 \overline{) \color{red}2}34$

Is there a remainder  
YES :  $23 - 18 = 5$ .  
Put 5 before the next digit (4)  $9 \overline{) \color{red}2}3^54$

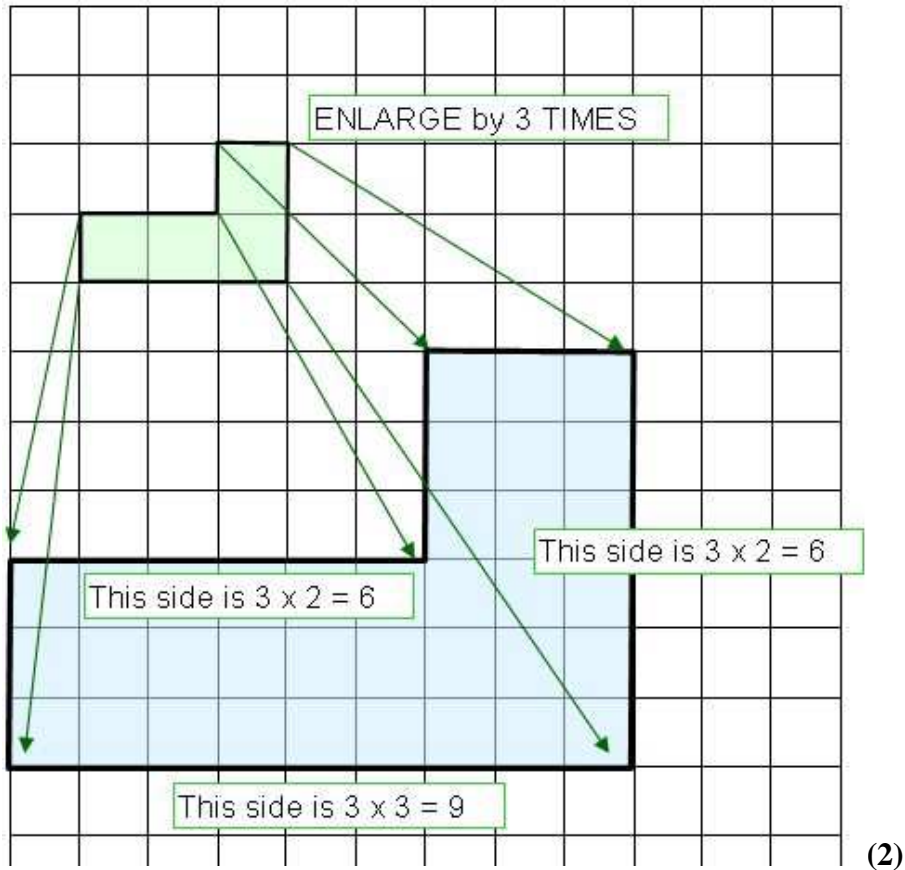
Will 9 go into 54  
YES: six times  
 $6 \times 9 = 54$   
Put 6 at the top  $9 \overline{) \color{red}26}3^54$

Is there a remainder  
NO : we have finished  $9 \overline{) \color{red}26}3^54$

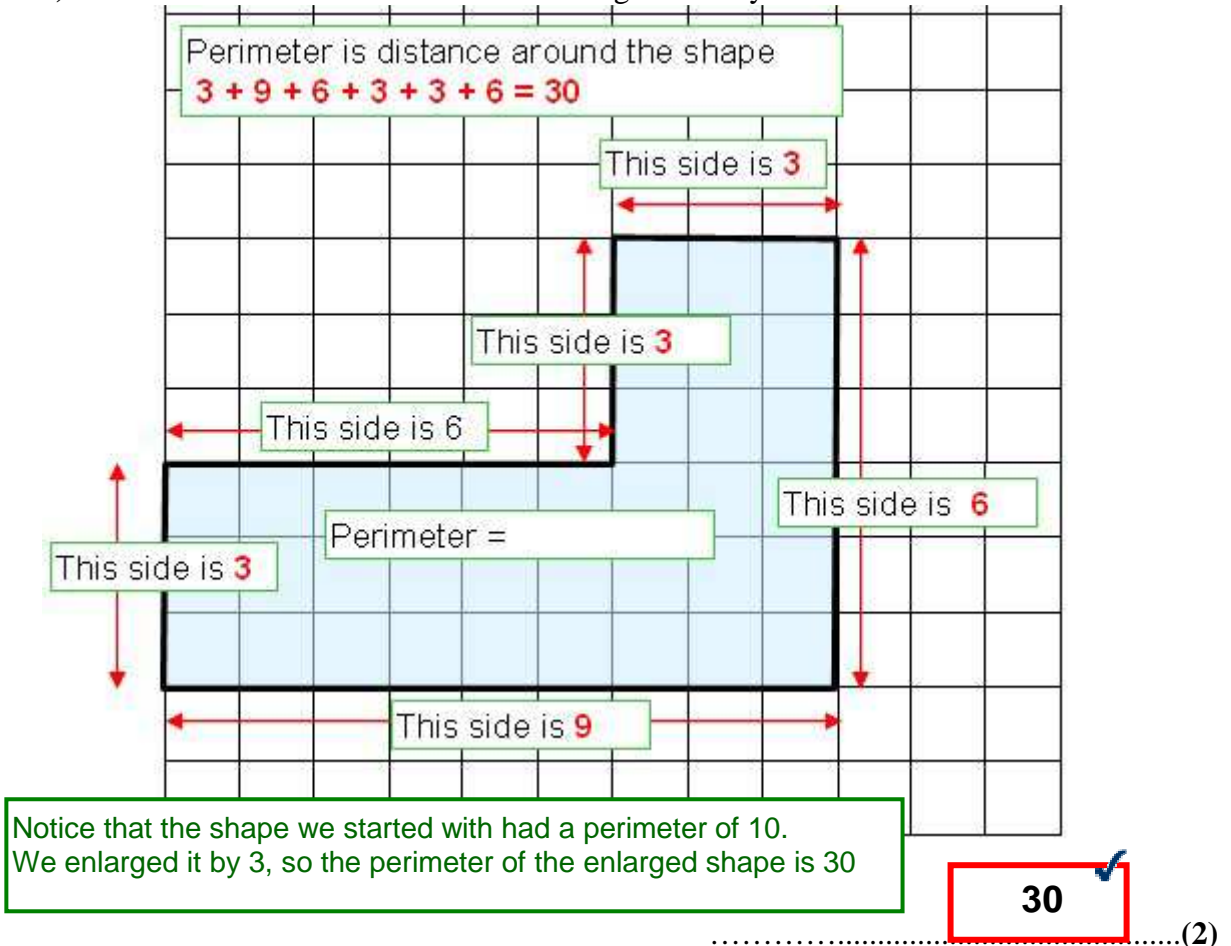
If we travel 26 miles in 1 hour, our speed is 26 mph

... 26 ...mph  
(2)

8. a) Enlarge the shape shown below by scale factor 3



- b) What is the *PERIMETER* of the enlarged shade you have drawn?



9 Sylvia is  $x$  years old.

Her husband Cyril is 4 years older.

a) Write down an expression, in terms of  $x$ , for Cyril's age.

An expression is something that contains numbers and letters.

Cyril is 4 years older than Sylvia who is  $x$  years old.

So Cyril is  $x + 4$  years old.

.....  $x + 4$  ✓

(1)

The total age of both Sylvia and Cyril is 144 years.

b) Write an equation and solve it to find the value of  $x$  (Sylvia's age).

Sylvia is  $x$  years old.

Cyril is  $x + 4$  years old.

Since we know that these add up to 144, we can make an *equation*:

$$x + x + 4 = 144 \text{ so } 2x + 4 = 144$$

If we solve  $2x + 4 = 144$  we can find  $x$

Take 4 from both sides of the equation

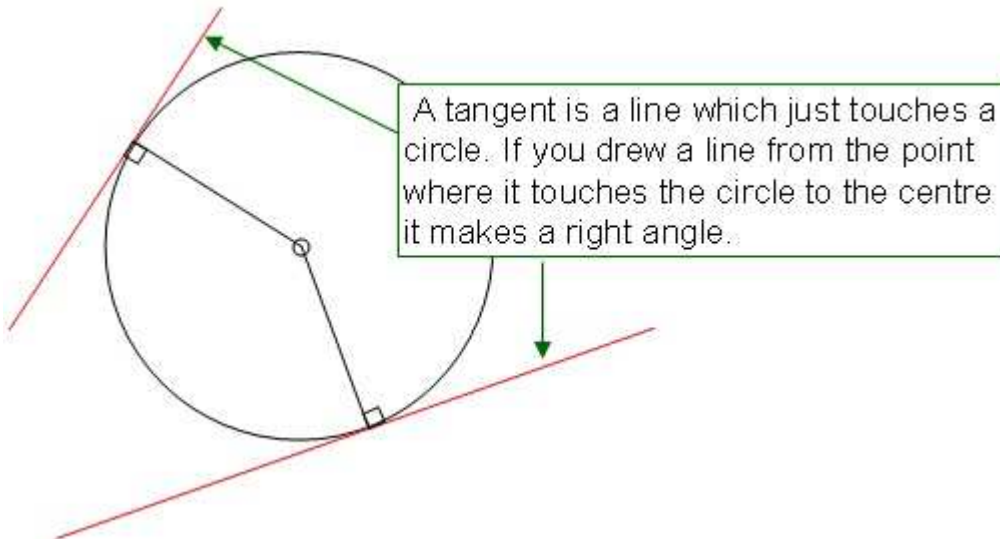
$$2x + 4 - 4 = 144 - 4 \text{ so } 2x = 140$$

$$\text{and } x = 140 \div 2 = 70$$

.....  $70$  ✓

(2)

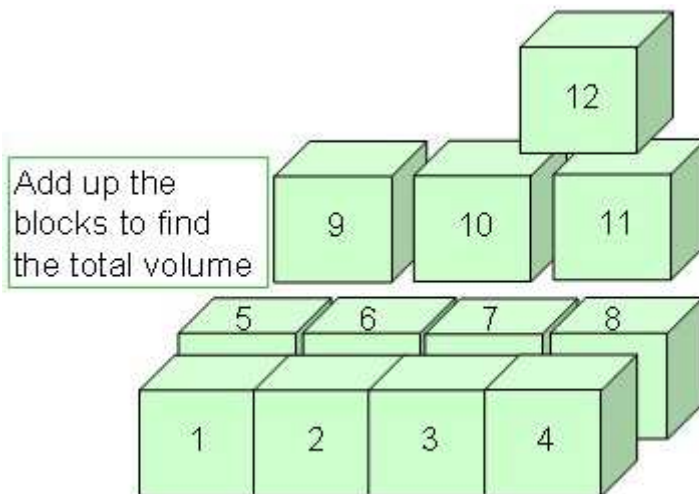
10. a) Sketch a circle and add a tangent to it in the space below.



(1)

Several centimetre cubes have been stacked as shown

b) How many *more* cubes are needed to make a volume of  $16 \text{ cm}^3$



Add up the blocks to find the total volume

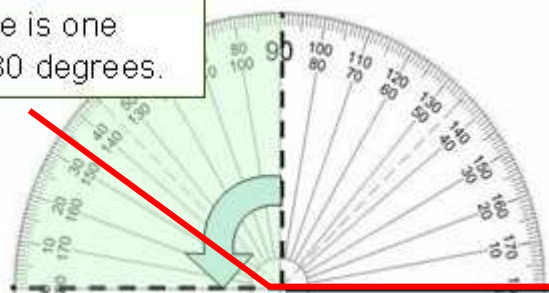
4

(2)

The total is  $12 \text{ cm}^3$ . To make it up to  $16 \text{ cm}^3$  we need four more cubes..

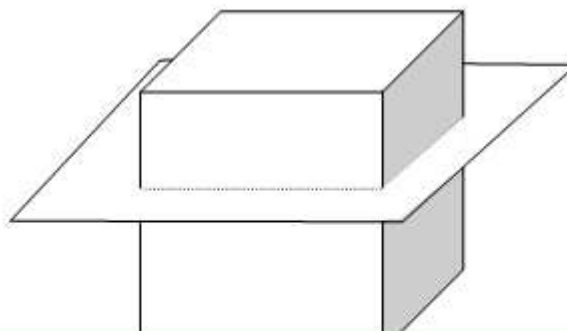
c) Sketch an obtuse angle in the space below.

An Obtuse angle is one between 90 and 180 degrees.



(1)

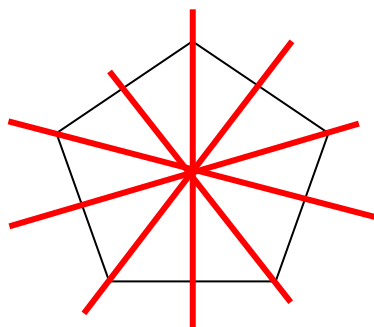
11. a) Draw a *plane* of symmetry on the 3-D shape shown



A plane of symmetry cuts the shape into two equal shapes. This one is horizontal but it could also be a vertical slice.

(1)

- b) What is the mathematical name for the regular shape below.



**Regular Pentagon**

(1)

The USA defence building is called the PENTAGON because of its shape

- c) Draw the lines of symmetry on the shape above. How many are there?

A line of symmetry divides the shape into two mirror images of exactly the same shape.

5

(1)

12. a) As a fraction what is the probability of getting a number *more than 2* when you throw a dice

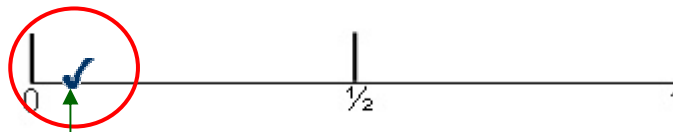
Probability =  $\frac{\text{possibilities or chances we have}}{\text{Total possibilities}}$

A dice has 6 possible numbers.  
There are 4 numbers greater than 2: 3, 4, 5, 6  
So the probability is 4 out of 6 or 2 out of 3

$$\frac{4}{6} \text{ or } \frac{2}{3}$$

.....  
(1)

- b) Mark the probability scale to show the probability that it will rain every day during the school summer holidays



There is almost no chance of it raining every day over the summer holidays !  
But we cannot say it is impossible so the mark is just above zero.

(1)

- c) As a percentage what is the probability of getting a tail when you toss a fair coin

A fair coin has a 1 in 2 chance of giving a tail or  $\frac{1}{2}$  .  
As a percentage this is 50%

50%

.....  
(1)

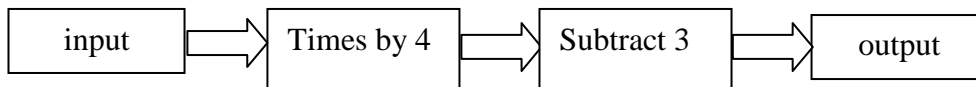
- d) The probability that it will rain in August is 0.7.  
What is the probability that it will NOT rain.

The probability of something happening + probability of it *not* happening = 1  
So probability of *not* raining is 1 – probability of rain = 1 – 0.7 = 0.3

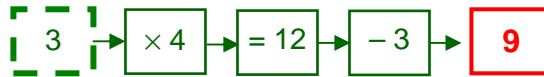
0.3

.....  
(1)

13. Here is a rule



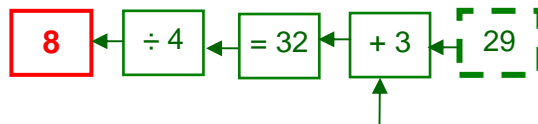
a) If the input is 3 what is the output



Start with input as 3. Then times by 4. We get 12.  
Now subtract 3. We get 8 as the output.

9 (1)

b) If the output is 29 what is the input



By reversing all the operations the rule can be written going from right to left.  
Start with output as 29. Then add 3 (opposite of subtract), We get 32.  
Now divide by 4 (opposite of times). We get 8 as the input.

8 (1)

14. An X-Box cost £240  
VAT on the X-box was 17 ½ %

How much does the X-box cost including VAT?

17 ½ % = 10% + 5% + 2½ %  
To find 10% divide the amount by 10

	£240 × 10%	= £24
5% is half that:	£240 × 5%	= £12
2 ½ % is half that:	£240 × 2½ %	= £6

VAT = £24 + £12 + £6 = £42  
Total price = £240 + £42 = £282

£282 (3)

15. A two way table shows the favourite TV programs for 40 adults

	Men	Women	
East enders	9	7	16
Big Brother	7	10	17
Neighbours	5	2	7
Total	21	19	40

1. This must be 7 because  $10 + 2 + 7 = 19$

2. This must be 16 because  $9 + 7 = 16$

3. This must be 21 because  $21 + 19 = 40$

4. This must be 7 because  $9 + 7 + 5 = 21$

5. This must be 17 because  $7 + 10 = 17$

6. This must be 7 because  $5 + 2 = 7$

Complete the two way table

(3)

16. The formula  $v = u + at$  gives the final velocity of an object as it accelerates.

a Find the value of  $v$  when:

i  $u = 20$ ,  $a = 5$  and  $t = 9$

Replace the letters with the values given:  
So  $v = u + at$  becomes  $v = 20 + 5 \times 9 = 20 + 45 = 65$

65

(2)

ii if  $v = 35$ ,  $a = 4$  and  $t = 5$  find  $u$

Again replace the letters with the values given and solve the equation  
So  $v = u + at$  becomes  $35 = u + 4 \times 5$  or  $35 = u + 20$

Solve  $35 = u + 20$  by taking 20 from both sides  
 $35 - 20 = u + 20 - 20$   
 $15 = u$

15

(2)



17. What is  $243 \times 34$

**The older traditional method**

Separate thousands, hundreds, tens and units with dotted lines. We have added 1000's in case we need it later

1000s, 100s, 10s, 1s

Multiply 243 by the 3 first

$$\begin{array}{r} 2 \ 4 \ 3 \\ \times 3 \ 4 \\ \hline \end{array}$$

Since the 3 is really thirty write a zero in the units

$$\begin{array}{r} 2 \ 4 \ 3 \\ \times 3 \ 4 \\ \hline \phantom{0} \end{array}$$

Now do  $3 \times 3 = 9$ . Write to left of zero in tens

$$\begin{array}{r} 2 \ 4 \ 3 \\ \times 3 \ 4 \\ \hline \phantom{0} \ 9 \ 0 \end{array}$$

Now do  $3 \times 4 = 12$ . Put the 2 in the hundreds but carry the 1 into the next column

$$\begin{array}{r} 2 \ 4 \ 3 \\ \times 3 \ 4 \\ \hline 1 \phantom{0} \ 2 \ 9 \ 0 \end{array}$$

Now do  $3 \times 2 = 6$ . Add this to the one we carried  $6 + 1 = 7$ . Put the 7 in the next column

$$\begin{array}{r} 2 \ 4 \ 3 \\ \times 3 \ 4 \\ \hline 1 \phantom{0} \ 2 \ 9 \ 0 \\ 7 \ 2 \ 9 \ 0 \end{array}$$

Draw a dotted line under the 7290

Multiply 243 by the 4 next

1000s, 100s, 10s, 1s

$$\begin{array}{r} 2 \ 4 \ 3 \\ \times 3 \ 4 \\ \hline 7 \ 2 \ 9 \ 0 \end{array}$$

$4 \times 3$  is 12. Write the 2 in the units BUT carry the 1 to the tens

$$\begin{array}{r} 2 \ 4 \ 3 \\ \times 3 \ 4 \\ \hline 7 \ 2 \ 9 \ 0 \\ \phantom{0} \ 1 \ 2 \end{array}$$

Now do  $4 \times 4 = 16$ . Add the 1 you carried  $16 + 1 = 17$ . Put 7 in the tens. Carry the 1 to the next column

$$\begin{array}{r} 2 \ 4 \ 3 \\ \times 3 \ 4 \\ \hline 7 \ 2 \ 9 \ 0 \\ \phantom{0} \ 1 \ 7 \ 2 \end{array}$$

Now do  $4 \times 2 = 8$ . Add the 1 you carried  $8 + 1 = 9$ . Put the 9 in the next column

$$\begin{array}{r} 2 \ 4 \ 3 \\ \times 3 \ 4 \\ \hline 7 \ 2 \ 9 \ 0 \\ \phantom{0} \ 9 \ 7 \ 2 \end{array}$$

Now add the two numbers

$$\begin{array}{r} 7 \ 2 \ 9 \ 0 \\ + 1 \ 1 \ 9 \ 7 \ 2 \\ \hline 8 \ 2 \ 6 \ 2 \end{array}$$

## The 'New' grid method

Put the two numbers in a grid  
Draw diagonals as shown

Start with 3 on right and work to left along row

2	4	3	
			3
			4

Repeat for next row  
From right to left

2	4	3	
0	6	1	2
0	8	1	6
			2
			4

$3 \times 3 = 9$  - Put 0 in top half of square, 9 in bottom

2	4	3	
		0	9
			3
			4

ADD diagonal columns from right to left  
Put answer at bottom

2	4	3	
0	6	1	0
0	8	1	1
		6	2
			2
			4

$4 \times 3 = 12$  - Put 1 in top half of square, 2 in bottom

2	4	3	
	1	2	0
			9
			3
			4

$1 + 6 + 1$  (carried)  
 $= 8$

2	4	3	
0	6	1	0
0	8	1	1
8		2	6
		2	2
			4

$2 + 1 + 8 + 1$  (carried) = 12  
2 down CARRY the 1

Just 1 here

$9 + 1 + 6 = 16$   
6 down CARRY the 1

$2 \times 3 = 6$  - Put 0 in top half of square, 6 in bottom

2	4	3	
0	6	1	0
		2	9
			3
			4

8262 ✓

(3)

18. a) Simplify:

i)  $a + 3 + a + a$

Simplify means put all the terms of the same type together.  
In this case we have 3 lots of a or 3a plus the 3 so we have 3a + 3

$3a + 3$

(1)

ii)  $6a \times 2a$

Multiplying  $6 \times 2 = 12$ ; Multiply  $a \times a$  we write as  $a^2$ . So we have  $12a^2$

$12a^2$

(1)

b) Solve

$4t - 6 = 14$

Get rid of the 6 on the left side by adding 6 to both sides

$4t - 6 + 6 = 14 + 6$  so  $4t = 20$

Divide both sides by 4 so we only have t on the left.  $t = 20 \div 4 = 5$

$5$

t = ..... (1)

c) Expand and simplify:

$5(x + y) + 3(4x - 2y)$

Expand means multiply out the brackets:

$5(x + y) = 5x + 5y$  and  $3(4x - 2y) = 12x - 6y$

Simplify by putting same types together

$5x + 5y + 12x - 6y = 17x - y$

$17x - y$

(2)

d) Solve

$7(x + 2) = 5x + 21$

Expand the left side first:  $7x + 14 = 5x + 21$

(-14 from both sides)  $7x = 5x + 7$

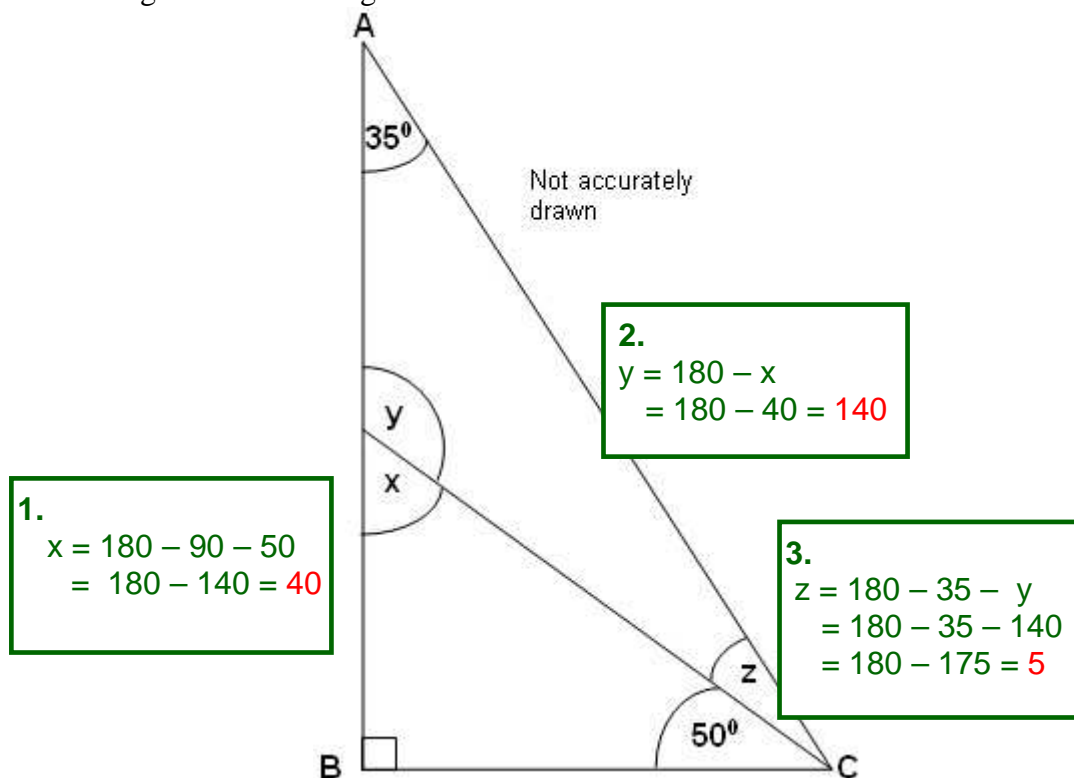
(-5x from both sides)  $2x = 7$

( $\div 2$ )  $x = 7 \div 2 = 3 \frac{1}{2}$

$3 \frac{1}{2}$

x = ..... (2)

19. The diagram shows triangle ABC.



Work out the sizes of angles  $x$ ,  $y$  and  $z$

Work out  $x$  first. The lower  $\Delta$  has a right angle and a  $50^\circ$  angle  
 Total angles in a  $\Delta$  add up to 180 degrees. So  $x = 180 - 90 - 50 = 40^\circ$

Now work out  $y$ . A straight line is 180 degrees.  
 So  $y = 180 - x = 180 - 40 = 140^\circ$

Finally work out  $z$ . In the top  $\Delta$  we have 35 and  $y = 140$  already.  
 The total angles add up to 180, so we have  $z = 180 - 35 - 140 = 5^\circ$

$x = \dots 40 \dots^\circ$  (1)

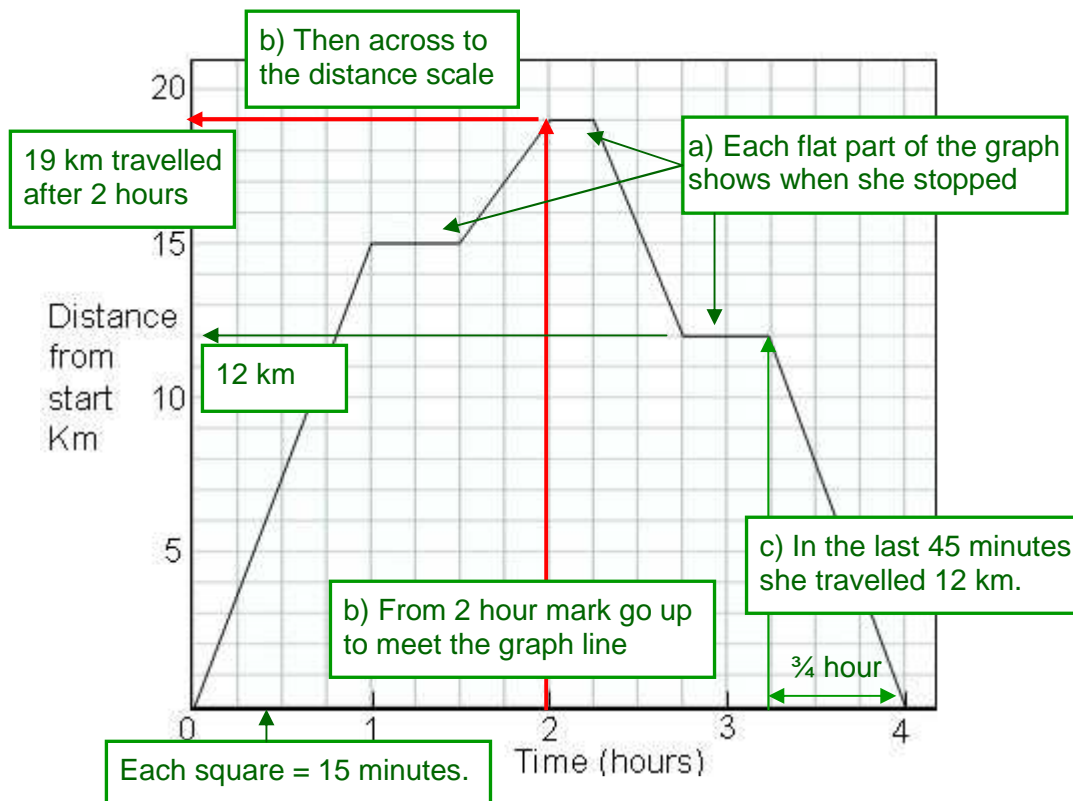
Explain how you got your answer

**Total angles in a  $\Delta$  add up to 180 degrees. So  $x = 180 - 90 - 50 = 40$**  ... (1)

$y = \dots 140 \dots^\circ$  (1)

$z = \dots 5 \dots^\circ$  (1)

20. The graph shows how far Jane travelled on her bike ride.



a) How many times did she stop for a rest?

Each flat part of the graph means her distance from the start stayed the same – so she was stopped.

3 (1)

b) After 2 hours how far had she travelled?.

Find two hours on the time scale. Go up until you meet the graph then go across left to the distance scale. (see red line)

19 (1)

c) Calculate Jane’s average speed for the last 45 minutes of her ride. Give your answer in kilometres per hour.

In the last 45 minutes she rode 12 kilometres.  
 So in 15 minutes or  $\frac{1}{4}$  hour she rode 4 km  
 So in 60 minutes or 1 hour she would ride 16 km  
 Speed is 16 km per hour

16 kph (2)

21. David, Jane and Matthew shared out £1000 between them in the ratio 4 : 6 : 10

How much did they each get.

Add the ratios together:  $4 + 6 + 10 = 20$   
So we are splitting the money into 20 parts.

Divide 1000 by 20 to find the value of one part  $1000 \div 20 = 50$

David gets 4/20ths or 4 parts  $= 4 \times 50 = 200$ ;  
Jane gets 6/20ths or 6 parts  $= 6 \times 50 = 300$ ;  
Matthew gets 10/20ths or ten parts or half  $= 500$

£. **200** and £. **300** and £. **500** (2)

22. What is.

- a)  $3 \frac{1}{2} + 2 \frac{3}{5}$  Write your answer as a mixed number.

Add the 3 and the 2 = 5 and put aside for now

Use this simple trick to add the fractions:

$\frac{1}{2} + \frac{3}{5}$  multiply as shown by the arrows. Red arrow gives base number

We get  $\frac{1}{2} + \frac{3}{5} = \frac{5}{10} + \frac{6}{10} = \frac{11}{10}$

This is  $1 \frac{1}{10}$ . Add back the 5 to give  $6 \frac{1}{10}$

What we have done is convert both fractions to the same denominator

**$6 \frac{1}{10}$**  (2)

- b)  $3 \frac{1}{2} \times 2 \frac{3}{5}$  Write your answer as a mixed number.

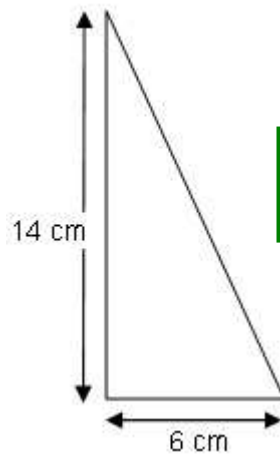
Convert  $3 \frac{1}{2}$  to a fraction =  $\frac{7}{2}$  and  $2 \frac{3}{5} = \frac{13}{5}$

Now just multiply out top and bottom

$$\frac{7}{2} \times \frac{13}{5} = \frac{91}{10} = 9 \frac{1}{10}$$

**$9 \frac{1}{10}$**  (2)

23. a) Calculate the area of this triangle.



Remember area of triangle is:  $\frac{1}{2} \times \text{base} \times \text{height}$

area of triangle is:  $\frac{1}{2} \times 14 \times 6 = 6 \times 7 = 42 \text{ cm}^2$

42 ✓

.....cm<sup>2</sup>  
(2)

- b) i Calculate the area of a circle with *diameter* 20 cm.

Area of circle is  $\pi r^2$  where r is the radius  
Diameter is twice the radius, so radius = 10 cm  
Area =  $\pi \times r^2 = 3.142 \times 10 \times 10 = 3.142 \times 100 = 314.2$

REMEMBER – when we multiply by 100 we move the decimal point two places to the right.

314.2 ✓

.....cm<sup>2</sup>  
(2)

- ii This circle is the cross-section of a cylinder of height 10 cm.  
Calculate the volume of the cylinder.

Volume of cylinder = cross sectional area  $\times$  height  
= 314.2  $\times$  10 = 3142

REMEMBER – when we multiply by 10 we move the decimal point one place to the right.

3142 ✓

.....cm<sup>3</sup>  
(2)

24. Seven students had a Maths and English test. Here are the scores out of 10.

Student	Maths	English
David	7	7
Jane	8	5
Laura	8	6
Stuart	6	8
Matthew	5	6
Pete	6	7
Vicky	8	3

- a) What is the mode of these score for Maths

The mode is the value that appears most often

8 ✓  
.....  
(1)

- b) What is the Range of the English scores

The range is the difference from the largest to the smallest.  
Largest – smallest = 8 – 3 = 5

5 ✓  
.....  
(1)

- c) What is the Median score for Maths

The median is the middle value when they are in order of size.  
5 6 6 7 8 8 8  
The middle is the 4<sup>th</sup> value = 7

7 ✓  
.....  
(1)

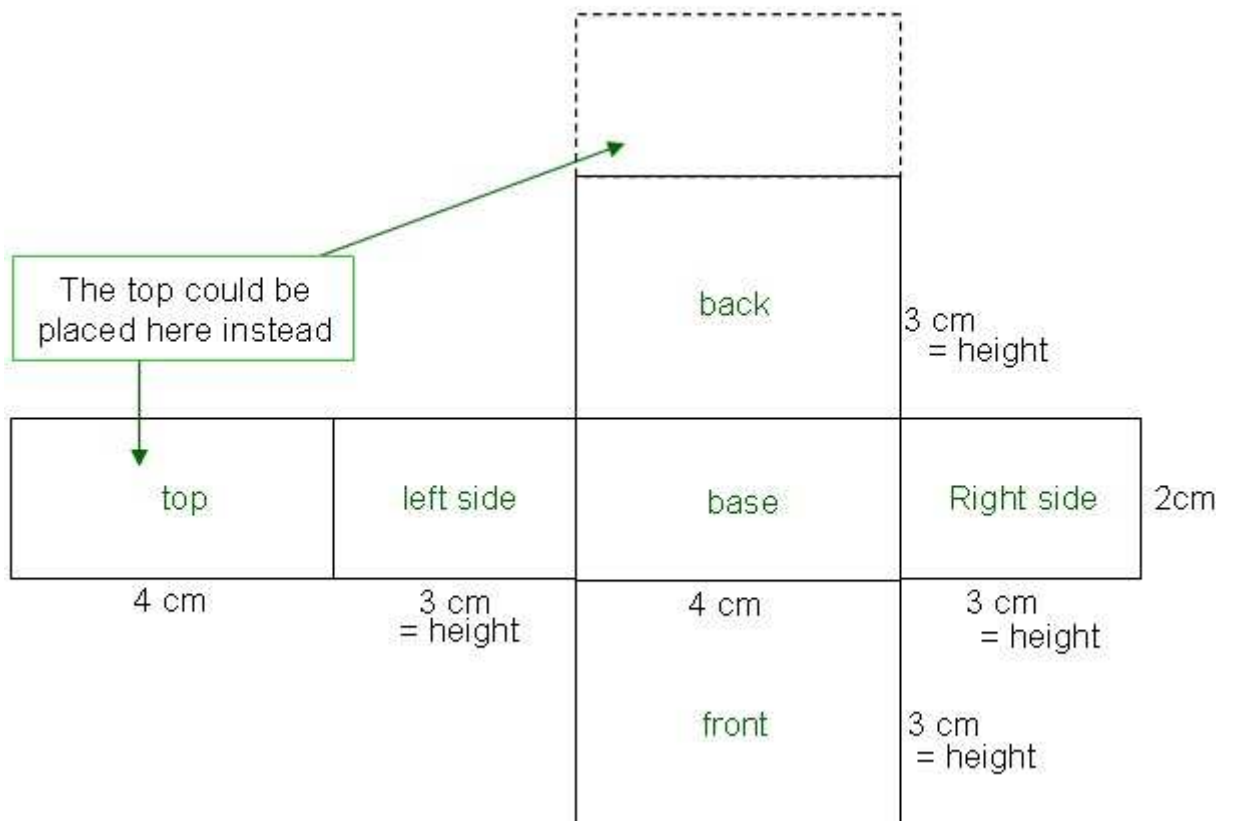
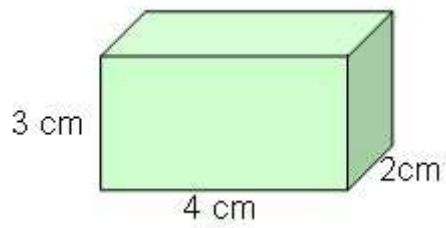
- d) What is the mean score for English

The mean is all the values added and divided by the number of values  
=  $\frac{7+5+6+8+6+7+3}{7} = \frac{42}{7} = 6$

6 ✓  
.....  
(2)

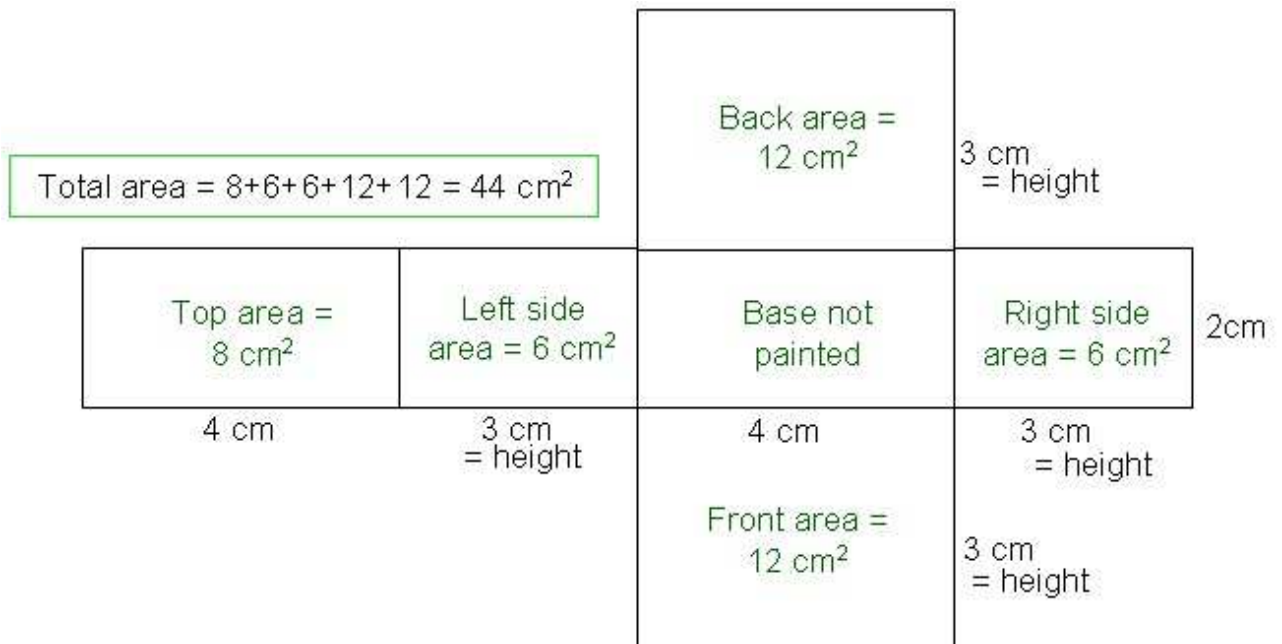


25. a) Using a ruler draw an accurate net of this cuboid



(2)

- b) Cyril wants to paint the four outside walls and the top of the cuboid, but *not* the base.  
 If one tin of model paint covers  $11\text{cm}^2$  how many tins of paint does Cyril need?  
 Use the net you drew in the first part of this question to help you answer.



Total area =  $44\text{ cm}^2$ .  
 A tin of model paint covers  $11\text{ cm}^2$ .  
 To work out how many tins we need we divide the area by the coverage of one tin  
 $44 \div 11 = 4$  tins

.....**4**.....tins  
 (2)

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**TOTAL FOR PAPER: 100 MARKS**  
**END**