

From the list of numbers

3    6    8    14    16    28    41    64

(a) write down the cube numbers

8 and 64  
(2)

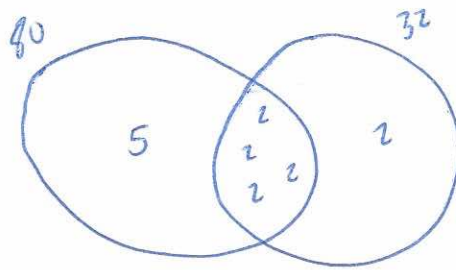
(b) write down the cube root of 27.

3  
(1)

2.

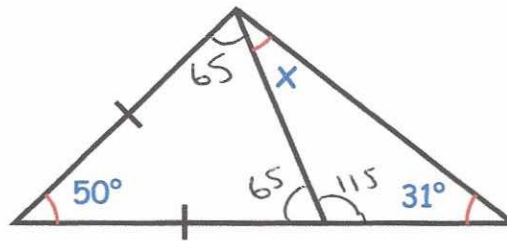
$$80 = 2 \times 2 \times 2 \times 2 \times 5$$

$$32 = 2 \times 2 \times 2 \times 2 \times 2$$



$$\text{HCF} = 2 \times 2 \times 2 \times 2 = 16$$

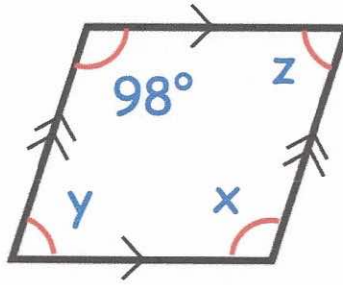
3



Find the size of the angle marked  $x$ .

.....<sup>o</sup>  
34  
(4)

4. Shown below is a parallelogram.



(a) Find  $x$

$$\begin{array}{r} 98^\circ \\ \hline \end{array} \quad (1)$$

(b) Find  $y$

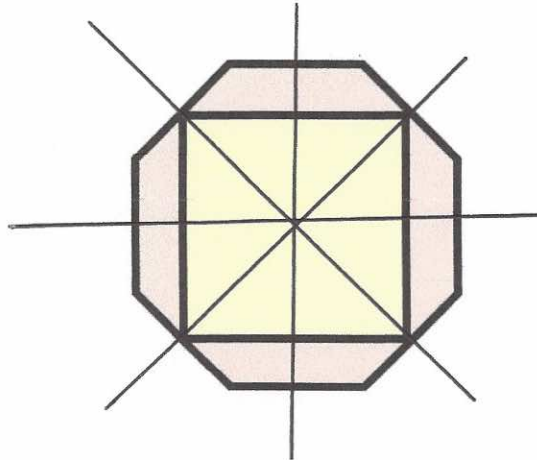
$$\begin{array}{r} 82^\circ \\ \hline \end{array} \quad (1)$$

(c) Find  $z$

$$\begin{array}{r} 82^\circ \\ \hline \end{array} \quad (1)$$

5.

A square is drawn inside of a regular octagon.



(a) Write down the order of rotational symmetry of the ~~hexagon~~ <sup>octagon</sup>.

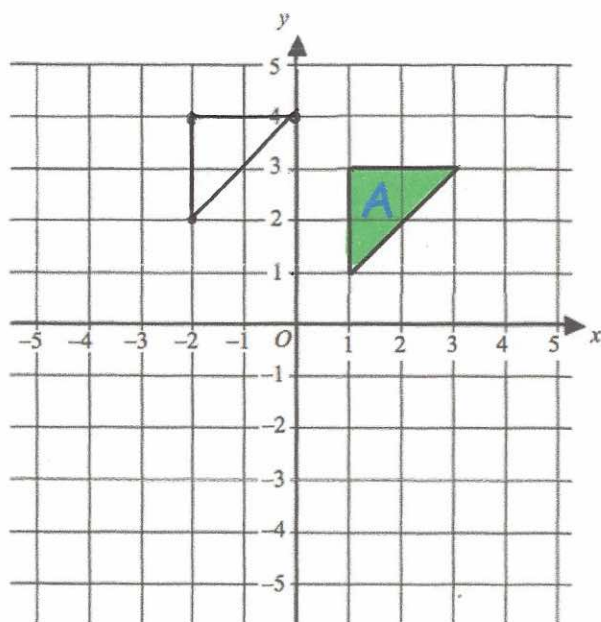
4

(1)

(b) On the diagram draw in all the lines of symmetry.

(2)

6

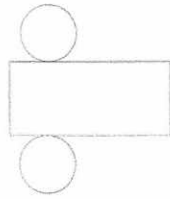


Translate triangle A by the vector  $\begin{pmatrix} -3 \\ 1 \end{pmatrix}$

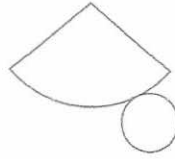
(2)

7

Below are the nets of two solid shapes.



A



B

(a) Write down the shape that is made from Net A.

Cylinder  
(1)

(b) Write down the shape that is made from Net B.

Cone  
(1)

8.

On a particular day, 98 adults visit a leisure centre.

Some are going to the gym.

Some are going to play tennis.

Some are going to play badminton.

The rest are going swimming.

51 people are male.

21 out of the 40 going to the gym are male.

19 males and 7 females are going swimming.

7 out of the 20 people playing badminton are male.

Twice as many females play tennis than males.

How many women play tennis?

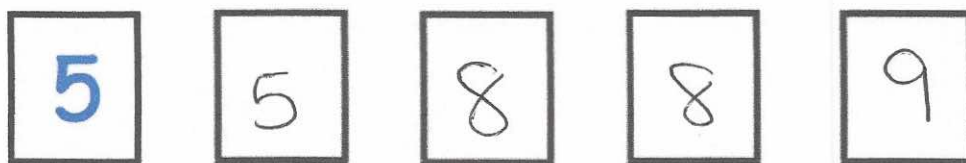
	M	F	T
G	21	19	40
T	4	8	12
B	7	13	20
S	19	7	26
T	51	47	98

.....8.....  
(2)



9.

Shown below are five cards which are arranged in order from smallest to largest



The range of the cards is 4.

$$5 + 4 = 9$$

The median of the cards is 8.

middle value

The mean of the cards is 7.

$$7 \times 5 = 35$$

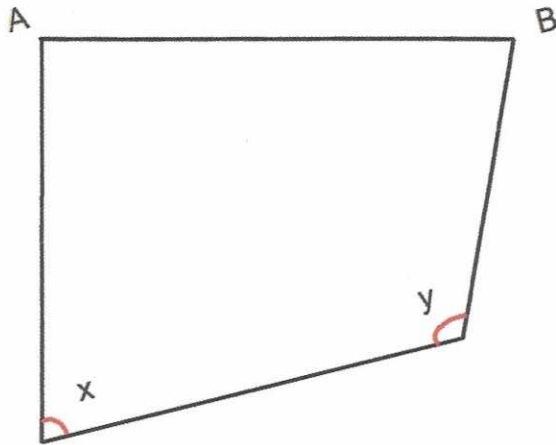
Work out the 4 missing numbers.

$\Rightarrow$  must add up to 35

$$35 - 5 - 8 - 9 = 13$$

$$\therefore 5, 8$$

....., ..... and .....  
(4)



(a) Measure the length of the line AB.

★ Depends on printing ★  
.....cm  
(1)

(b) What type of angle is x?

.....acute.....  
(1)

(c) Measure the size of angle y.

.....114.....°  
(1)

11

Write down all the prime numbers between 10 and 20.

11, 13, 17, 19  
.....  
(2)

12 . Megan says "when you square <sup>root</sup> a number, the answer is always smaller."

Show she is wrong.

$$\sqrt{1} = 1$$

$$\sqrt{0} = 0$$

$$\sqrt{0.25} = 0.5$$

(2)

13

(a) Write 50 as a product of its prime factors.

$$2 \times 5 \times 5$$

or  $2 \times 5^2$

.....  
(2)

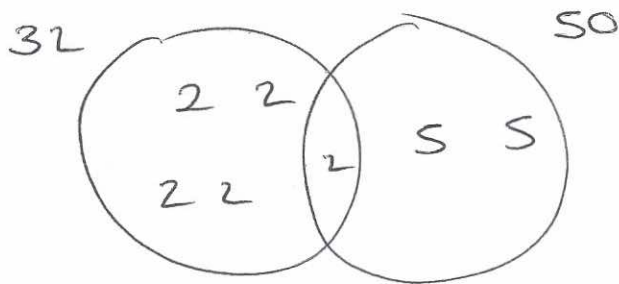
(b) Find the Lowest Common Multiple (LCM) of 32 and 50.

$$32 = 2 \times 2 \times 2 \times 2 \times 2$$

$$50 = 2 \times 5 \times 5$$

800

.....  
(2)



14

The attendance at Frome United versus Trowbridge Rovers was 8,701.

Of this crowd, five-sevenths were male.

Calculate how many people were female.  $\leftarrow \frac{2}{7}$

$$8701 \div 7 = 1243$$

$$1243 \times 2$$

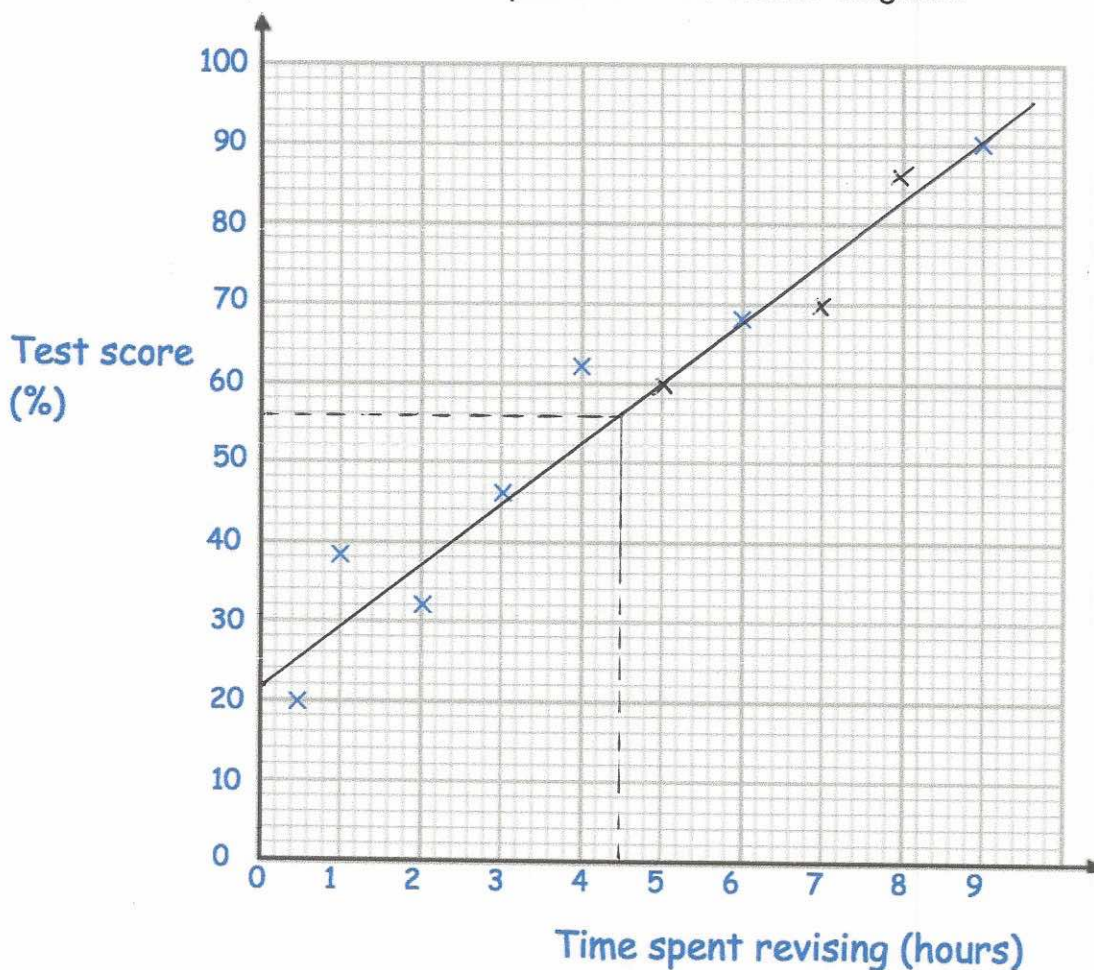
$$\begin{array}{r} 2486 \\ \hline (3) \end{array}$$

15

The table shows the time spent revising and the test scores of ten students.

Time spent revising (hours)	9	0.5	1	4	6	2	3	7	5	8
Test result (%)	90	20	38	62	68	32	46	70	60	86

The first seven points have been plotted on this scatter diagram.



(a) Complete the scatter diagram.

(1)

(b) Describe the relationship shown in the scatter diagram.

As the time spent revising increases, so does the test score

(1)

(c) Draw a line of best fit on your scatter diagram.

(1)

(d) Another student has spent 4.5 hours revising.

Use your line of best fit to estimate their test result.

56 %

(1)

16

The pictogram shows the amount of money raised by students in some tutor groups at a school.

Key ○ = £10

Tutor group		Raised
S	○ ○ ○ ○ ○ ○	£60
T	○ ○ ○	£30
E	○ ○ ○ ○ ◐	£45
P	○ ○ ○ ◐	£35

(a) Complete the raised column.

(2)

(b) Complete the pictogram for tutor group E.

(2)

(c) How much money was raised altogether?

$$60 + 30 + 45 + 35$$

£ 170

(1)



17

The weight of a 2p coin is 7g.

Find the weight of £6 worth of 2p coins.  
Give your answer in kilograms.

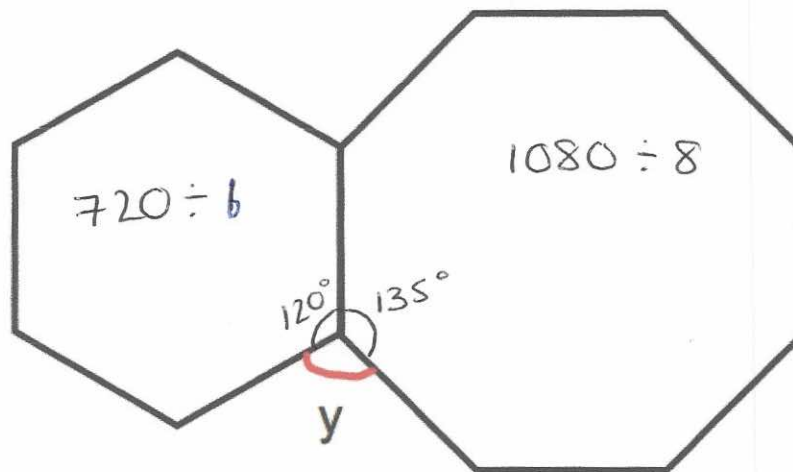
$$600 \div 2 = 300$$

$$300 \times 7 = 2100$$

.....2.1.....kilograms  
(4)

18.

Shown is a regular hexagon and a regular octagon.

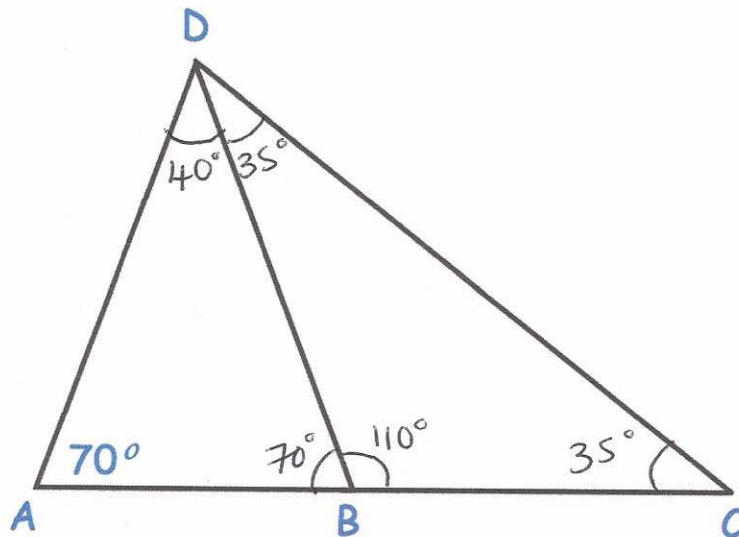


Calculate the size of angle  $y$ .

$$y = 105^\circ$$

(3)

19.



Triangles ABD and BCD are both isosceles.  
AC is a straight line.

Is ADC a right angle?

Clearly explain your answer.

No

$\angle ABD = 70^\circ$  (isosceles triangle - 2 angles equal)

$\angle ADB = 40^\circ$  (angles in triangle add to  $180^\circ$ )

$\angle CBD = 110^\circ$  (angles in straight line add up to  $180^\circ$ )

$\angle BDC = 35^\circ$  (2 angles in an isosceles triangle are equal) (4)

$\angle ADC = 75^\circ$  not  $90^\circ$

Timothy asked 30 people how long it takes them to get to school.

The table shows some information about his results.

Time (t minutes)	Frequency
$0 < t \leq 10$	2
$10 < t \leq 20$	8
$20 < t \leq 30$	12
$30 < t \leq 40$	7
$40 < t \leq 50$	1

30

Work out an estimate for the mean time taken.

$$720 \div 30$$

midpoint

5

15

25

35

45

fx

10

120

300

245

45

720

.....24.....minutes  
(4)

21

Sophie went to Spain.  
She changed £225 into euros (€).

The exchange rate was £1 = €1.62

(a) Change £225 into euros (€).

$$225 \times 1.62$$

$$\begin{array}{r} \text{€ } 364.50 \\ \hline (2) \end{array}$$

On her return to England, Sophie changed €66 into pounds (£)

The new exchange rate was £1 = €1.50

(b) Change €66 into pounds (£).

$$66 \div 1.5$$

$$\begin{array}{r} \text{£ } 44 \\ \hline (2) \end{array}$$

22

Lauren is given a 12% pay rise.  
Her new salary is £24,080

What was Lauren's salary before the pay rise?

$$112\% = 24080$$

$$1\% = 215$$

$$\begin{array}{r} \text{£ } 21500 \\ \hline (3) \end{array}$$

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23.

$$w^2 - 9$$

$$(w - 3)(w + 3)$$

16.

Work out the  $n$ th term for this sequence

8    17    26    35    44    ...    ...

$9n$    9    18    27

$$\frac{9n-1}{(2)}$$



25. Factorise

$$15y + 20$$

$$\frac{5(3y+4)}{(2)}$$

25.

Factorise  $x^2 + 2x - 24$

$$\frac{(x+6)(x-4)}{(2)}$$

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27.

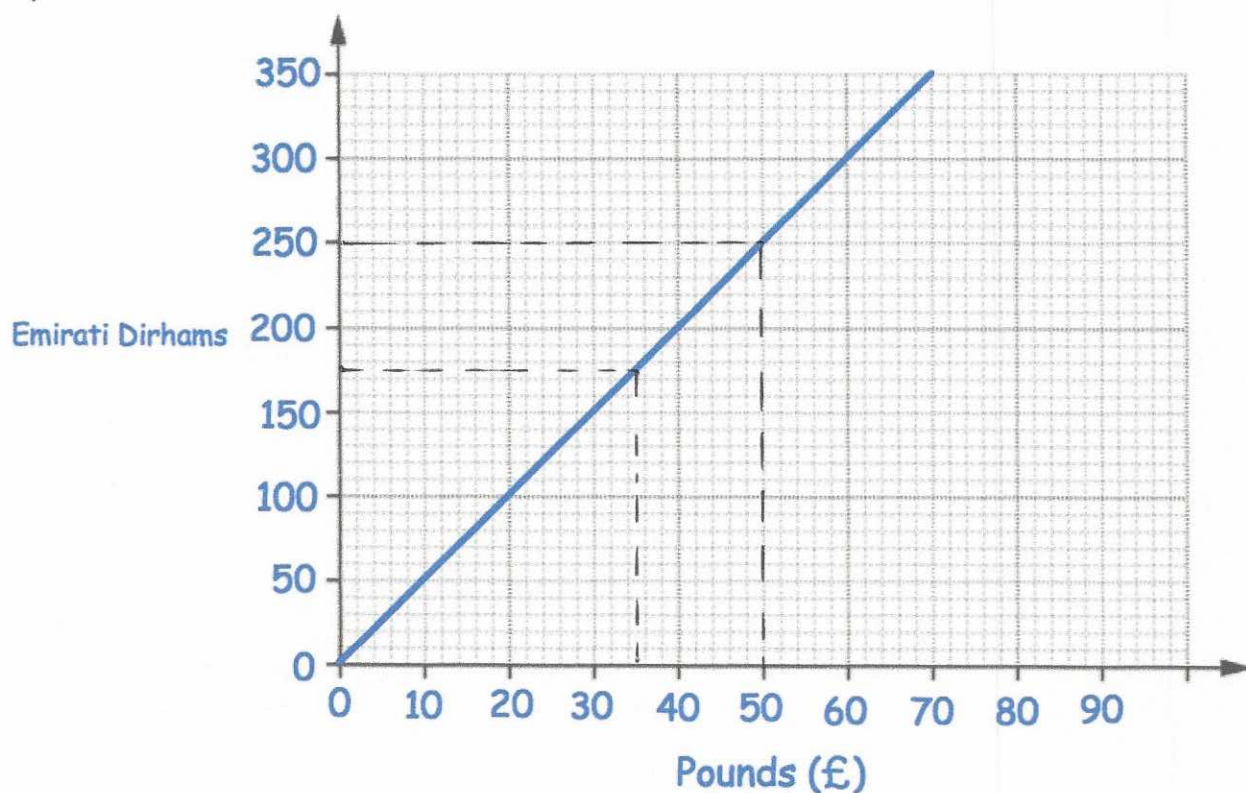
Solve the inequality  $5x + 11 \geq 2$

$$5x \geq -9$$

$$x \geq -1.8$$

$$\underline{x \geq -1.8}$$

(2)



(a) Convert £50 into Dirhams.

.....250.....Dirhams  
(1)

(b) Convert 175 Dirhams into Pounds (£).

£.....35.....  
(1)

Tom wants to buy a camera.

In London the camera costs £380.

In Abu Dhabi the camera costs 2000 Dirhams.

In which city is the camera cheaper and by how much?

Give your answer in pounds.

200 Dirhams = £40

2000 Dirhams = £400 City: London £20.....  
(1)



Factorise  $x^2 - 64$

$$\underline{(x+8)(x-8)}$$

(2)

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30.

A radioactive substance decays over time.  
Every year its mass decreases by 14%.

How many years will it take for 500kg of the substance to decay to a mass less than 200kg?

$$500 \times 0.86^t$$

$$t = 5 \quad 235.21 \text{ kg}$$

$$t = 6 \quad 202.28 \text{ kg}$$

$$t = 7 \quad 173.96 \text{ kg}$$

.....7.....years  
(3)