

**General Mathematics**  
**Reasoning and Enquiry 3**

1. Two electrical shops sell the same LCD television for the same price.



Murrays sell the TV for a deposit of £100 plus 12 payments of £48.  
Visionland require a deposit of £76 plus 24 equal payments.  
Calculate the size of each of these payments.

2. Homesure Ltd. offer insurance at the rate of £2.65 per £1000 for buildings and £4.40 per £1000 for contents.

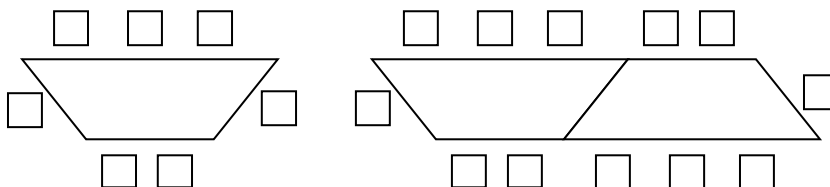


(a) Mr. Anwar wants to insure his house for £78400 and his contents for £22000.  
Calculate his total annual premium.

(b) Homesure allow Mr. Anwar to pay his premium by 12 monthly payments of £27.50.

How much extra is Mr. Anwar charged for paying his premiums monthly?

3. The pattern below shows an arrangement of tables and chairs.



- (a) Copy and complete the table below for this arrangement.

Number of tables (T)	1	2	3	4	5	6		25
Number of chairs (C)	7	12	17					

(b) Write down a formula for finding the number of chairs,  $C$ , to fit round  $T$  tables.

(c) How many tables would be needed to if 102 chairs were used?

4. Abad and Samia are both travelling from Perth to London, a distance of 735 kilometres. Abad is travelling by car and Samia by train.

Abad leaves Perth at 0805 and averages a speed of 100 kmph.

Samia's train leaves Perth at 0955 and averages a speed of 140 kmph.

Who will get to London first, and at what time will they arrive?

5. Hillside school are buying 75 scientific calculators costing £4.80 each. The supplier offers a discount of 15% for orders over 50.

Calculate how much Hillside will have to pay for the 75 calculators.

6. A wholesaler buys 60 DVD players costing £35 each. He sells each DVD player for £57.99 but is only able to sell 42 of the DVD players.

(a) Calculate the profit the wholesaler makes.

(b) Express this profit as a percentage of his cost of buying the players.

7. (a) Plot the points A(2,2), B(-2,8) and C(-6,2).  
 (b) Find a point D such that ABCD is a rhombus.  
 (c) Reflect the rhombus ABCD in the x-axis.
8. A basic cable television package, which includes 20 channels, costs £14.75 per month.  
 The cost of installation is £70 which will be included in the first month's bill.
- Additional channels can be added to the basic service.
- The movie channel package costs £13.50 per month
  - The music channel package costs £5.50 per month
  - The sports channel package costs £15.50 per month
- The Wilson's first bill after having cable television installed was £113.75.  
 They chose the basic package and two additional channels package.  
 Which additional packages did they choose?
9. Debbie has a job in a toolmaking factory. She produces metal spanners. She is paid as follows:
- £8.50 per hour plus 12 pence for every spanner she produces.
- Calculate her weekly wage in a week where she works 35 hours and produces 650 spanners.
10. John is a bricklayer. He is paid £10.75 per hour and a bonus of £7 for every 50 bricks he lays. One week John works 40 hours and is paid £514.  
 How many bricks did John lay that week?
11. Michael works in a ceramics factory. He paints designs on plates.  
 Michael takes  $1\frac{1}{2}$  hours to paint 12 plates.
- How many plates can he paint in a day if he works for 8 hours?
12. Amanda makes picture frames. She can make 20 frames in  $2\frac{1}{2}$  hours.  
 How many could she make in an 7 hour day?
13. Chunxian sits 7 examinations. Her marks for 6 of these subjects are given in the table below.

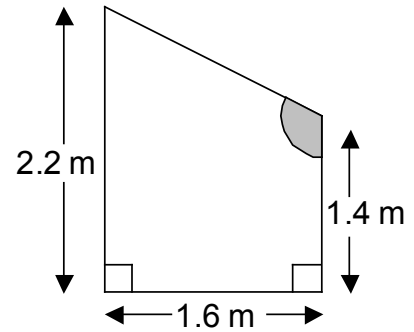
Subject	Maths	English	Chinese	Biology	Chemistry	History	Music
Percentage	88	51	95	74	80	66	

Chunxian's mean mark for the 7 examinations was 75%. Calculate Chunxian's Music mark.

14. The mean weight of 5 boys is 55 kilograms. 4 of the boys weigh – 53 kg, 58 kg, 60 kg and 50 kg. What is the weight of the 5<sup>th</sup> boy?

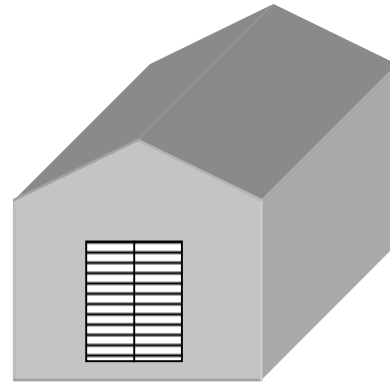
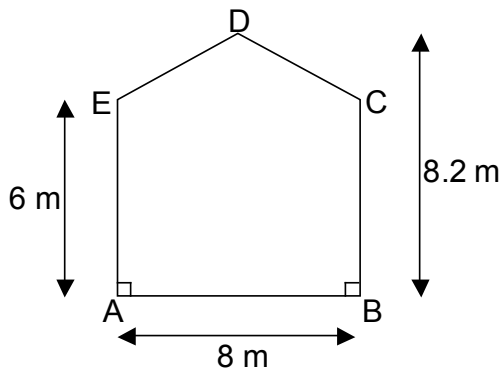
15. The diagram opposite shows the end view of a garden shed.

Calculate the size of the shaded angle.



16. The diagram opposite shows a barn.

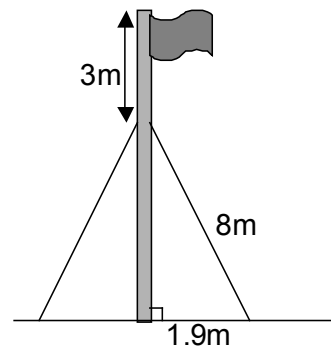
The dimensions for the front of the barn are shown below.



Given  $ED = DC$ , calculate the length of side  $ED$ .

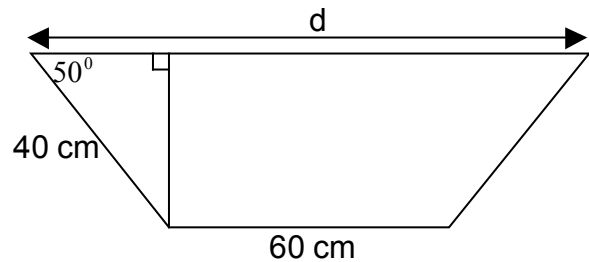
17. A flagpole is supported by metal wires connected to the ground 1.9 metres from the base of the flagpole. Each wire is 8 metres long.

Calculate the height of the flagpole.  
Give your answer to the nearest metre.



18. The diagram shows the end view of a symmetrical water trough.

Calculate the distance  $d$ .



19. Red, blue and green paint are to be mixed in the ratio 2:4:3.

- (a) 15 litres of green paint are used. How much red paint is needed?
- (b) On another occasion the colours are mixed to produce a total of 72 litres.  
How much blue paint was used on this occasion?

20. Flour, sugar and butter are mixed by weight in the ratio 7:3:2.

350 grams of flour are used. How many grams of sugar are required?

21. This advertisement appeared in a Newspaper

<b>Theatre Tickets</b>		
	<b>Adult</b>	<b>Child</b>
<b>Balcony</b>	<b>£15</b>	<b>£10</b>
<b>Front Stalls</b>	<b>£12</b>	<b>£8</b>
<b>Back Stalls</b>	<b>£10</b>	<b>£7</b>

**Phone for details of special prices  
for mid-week show**

A school phoned for details of the special prices for the mid-week show.  
Tickets for the front stalls were bought for 30 pupils and 4 teachers.  
The tickets cost a total of £186

- (a) How much did the school save?
- (b) The teachers paid £9 for their tickets.  
How much did each pupil's ticket cost?

22. Crockery can be bought for the prices shown opposite.

A set of 6 cups, 6 saucers and 6 plates can be bought  
for £46.80.

Item	Cost
Cup	£3.50
Saucer	£2.00
Plate	£4.25

- (a) How much would be saved if the set was bought instead of buying the  
items separately.
- (b) Express this saving as a percentage of the cost of buying the items separately.

23. Two metals zinc and aluminium are combined in the ratio 3:5 to make an  
alloy. There are 30 kg of zinc available and 40 kg of aluminium.  
What is the largest weight of alloy that can be made using these amounts?

24. To make 9 carat gold, pure gold and copper are mixed in the ratio 6:7. A  
jeweller has 240 grams of pure gold and 245 grams of copper.  
What is the maximum weight of 9 carat gold that the jeweller can make?