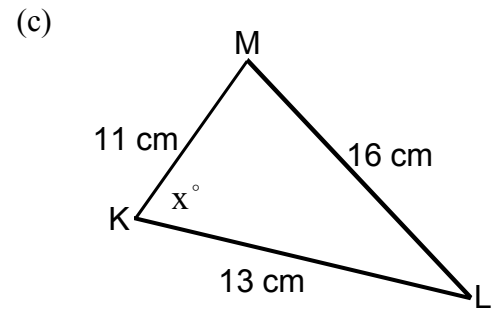
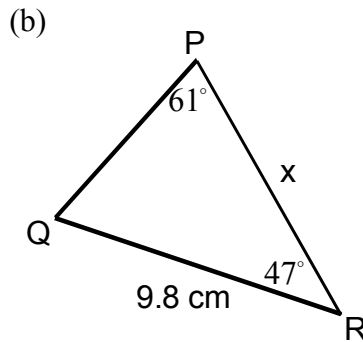
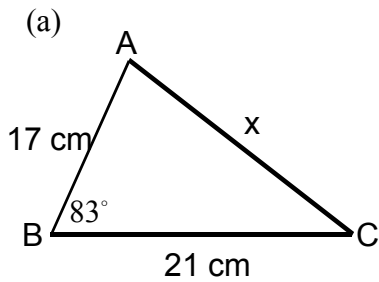
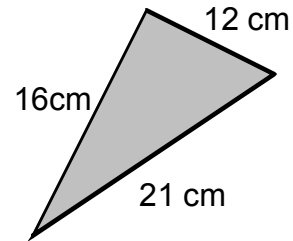


Intermediate 2 – Revision
Unit 2

1. Calculate x in each triangle below

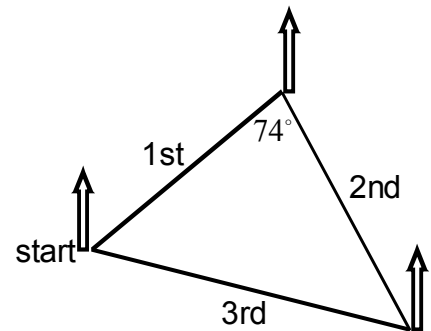


2. A metalworker is asked to cut a piece of metal into a right-angled triangle. When the triangle has been cut it has sides measuring 12 cm, 16 cm and 21 cm.
Is this triangle right-angled?



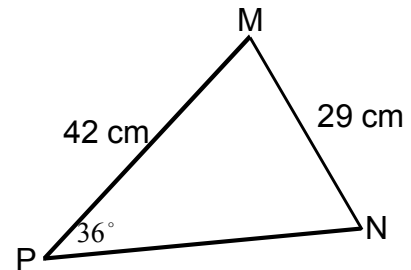
3. A cross-country race consists of 3 stages, as shown. The 1st stage is 5 km long and the second stage is 7 km long.

Calculate the length of the third stage.



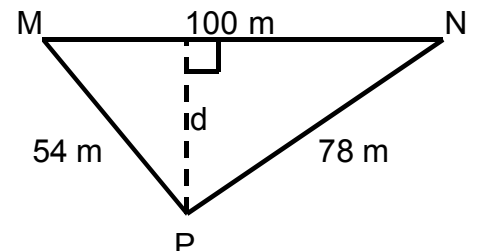
4. In the triangle opposite find

- (i) the size of angle MNP
(ii) the area of the triangle



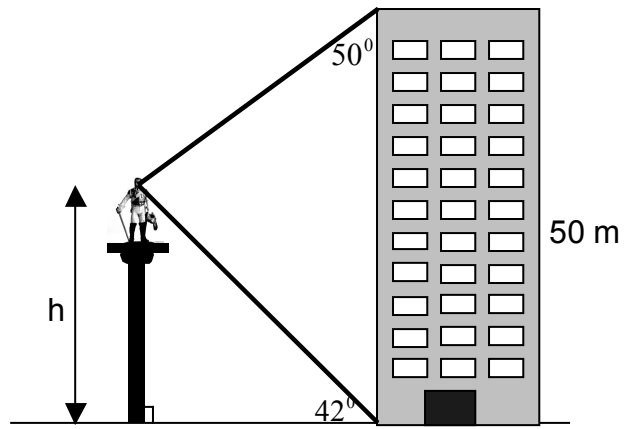
5. Two boats M and N locate a wreck, P, on the sea bed. The distances from the boats to the wreck are shown in the diagram.

Calculate the depth, d metres, of the wreck below the surface.



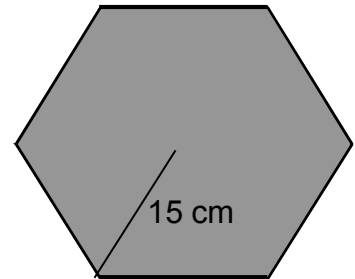
6. A building, 50 metres high, overlooks a garden with a statue.
 From the roof of the building the angle to the top of the statue is 50° .
 From the foot of the building the angle of elevation to the top of the statue is 42° .

Calculate, h , the height of the statue.

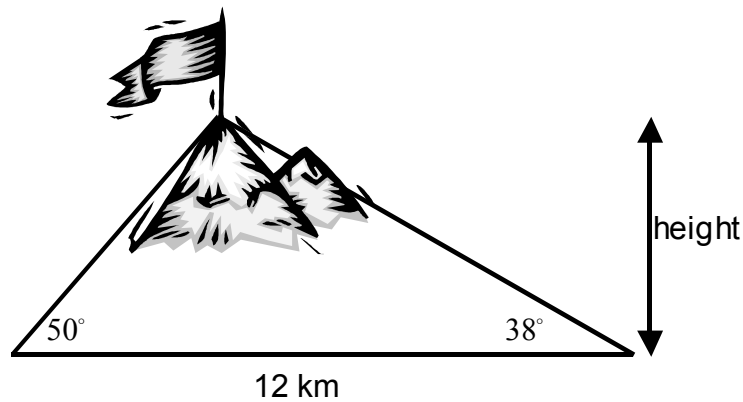


7. The diagram opposite shows a regular hexagon.

Calculate the area of this hexagon.



8. Two mountaineers are standing 12 kilometres apart. From one the angle of elevation to the top of a mountain is 50° and from the other the angle of elevation is 38° .



Calculate the height of the mountain.

9. Solve the simultaneous equations

(a) $3x - y = 14$
 $2x + 3y = 13$

(b) $6m + 5n = -4$
 $4m + 2n = 0$

(c) $5u - 3w = 29$
 $3u + 2w = 25$

10. 6 basic calculators and 3 scientific calculators cost £28.50.
 5 basic calculators and 2 scientific calculators cost £21.50.

Find the cost of 10 basic calculators and 5 scientific calculators.

11. Noah runs a small dog and cat sanctuary. He has 30 animals altogether.
Let x represent the number of dogs Noah has and let y represent the number of cats.

(a) Write down an equation involving x and y .

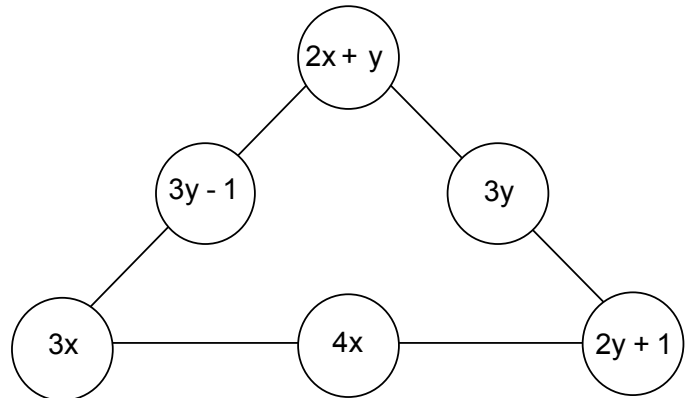
Noah insures his animals against illness or accidents. He pays £7 per month for each dog and £5 per month for each cat. Altogether he pays £174 per month.

(b) Write down another equation involving x and y .

(c) Use your equation to find how many dogs Noah has?

12. In the diagram each row adds to give a total of 39.

Construct a pair of equations and hence find the values of x and y .



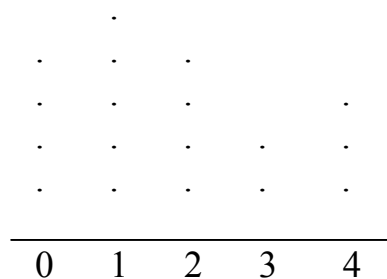
13. The marks of 20 pupils in a class test are shown in the stem and leaf diagram below.

0	5 7
1	8 9 9
2	0 1 3 5 6
3	1 1 4 7 8 9
4	7 7 7 8

$1 \mid 6$ represents 16

- (a) Find the range of the marks.
- (b) Write down the modal marks
- (c) Find the median mark
- (d) Find the lower and upper quartiles
- (e) Show the information in a boxplot.

14. The dotplot below shows the number of goals scored by 18 football teams one Saturday.



- (a) Describe this distribution.
- (b) Find the median
- (c) Find Q_1 and Q_3
- (d) Calculate the semi-interquartile range.

15. The price of a can of coca-cola in 7 different shops is

45p 46p 43p 49p 42p 49p 47p

- Calculate the mean and standard deviation of these prices
- Each shop reduces its price of a can of coca-cola by 5p. Write down the mean and standard deviation of the new prices.

16. (a) The number of pupils in 7 third year classes in a secondary school are

23 26 25 25 22 28 26

Calculate the mean and standard deviation of the class sizes.

- In the same school the mean and standard deviation of the number of pupils in 7 fourth year classes are 22 and 4.4 respectively.

Make two comparisons between the class sizes in third year and in fourth year.

17. The colour of football strip worn by 40 different teams was recorded as follows

Colour	Frequency
Blue	4
Green	3
White	5
Red	8
Yellow	2
Other	18

- Construct a column of cumulative frequencies for this table.
- Construct a column of relative frequencies
- If the information was to be illustrated in a pie chart, calculate the size of angle which would represent
 - a blue strip
 - a white strip.

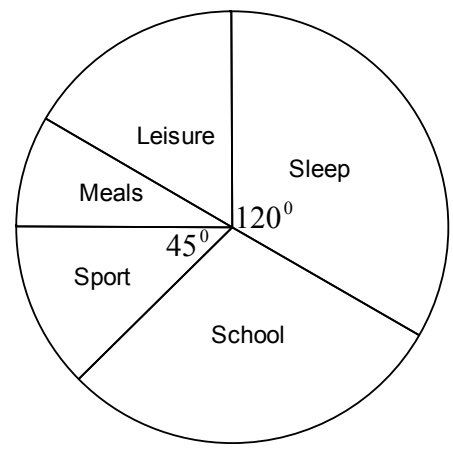
18. The number of pupils in 25 different classes in a Glasgow secondary school are

No. of pupils	No. of classes
26	4
27	6
28	5
29	2
30	4
31	2
32	2

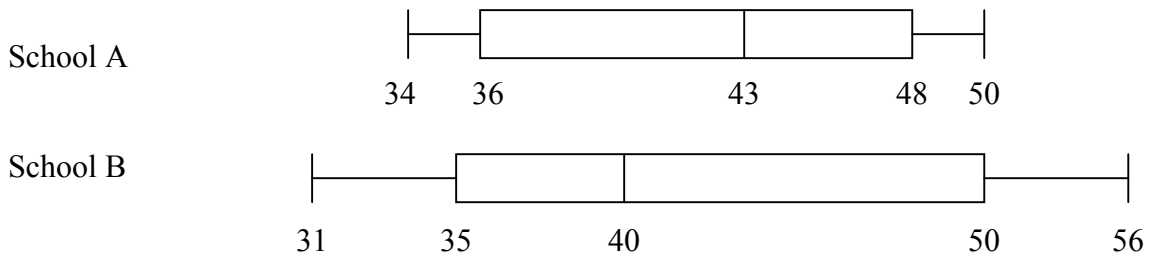
- Calculate the mean number of pupils per class.
- Find the probability that a class contains less than 28 pupils.

19. The pie chart opposite shows how David spends an average week. Calculate, in hours,

- (a) how much time he spends sleeping.
- (b) how much time he spends playing sport.

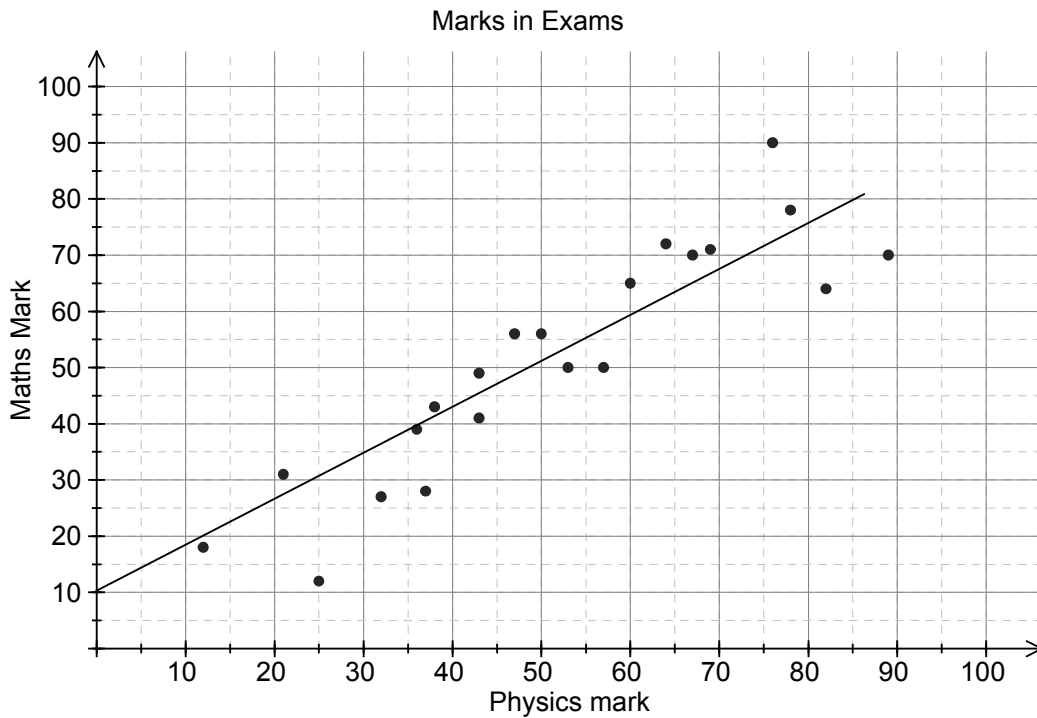


20. The boxplots below show the age distribution of the teachers at two schools.



By comparing the boxplots, make two appropriate comments about the ages of the teachers at the two schools.

21. The scattergraph below shows the Maths and Physics marks of a group of pupils in a third year examination. A line of best fit has been drawn on the diagram. The points (0,10) and (60,60) both lie on this line.



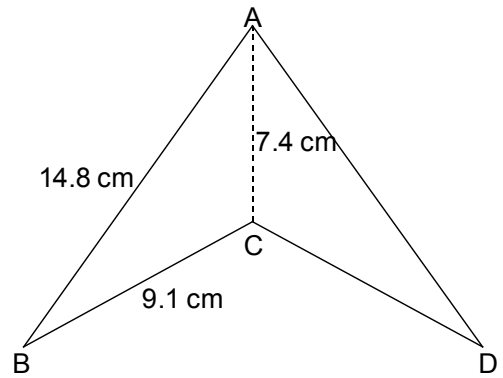
- (a) Find the equation of this line of best fit.
- (b) Use your equation to estimate the Maths mark for a pupil who scored 72 in Physics.

22. The sketch shows a V-shaped kite.
 AB is 14.8 centimetres, BC is 9.1 cm
 and the diagonal AC is 7.4 cm.

(a) Calculate the size of angle ACB.

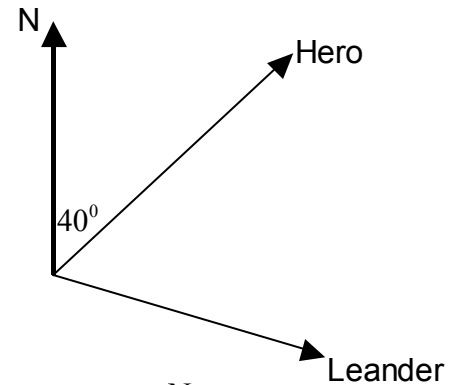
Do not use a scale drawing.

(b) Calculate the area of the kite.



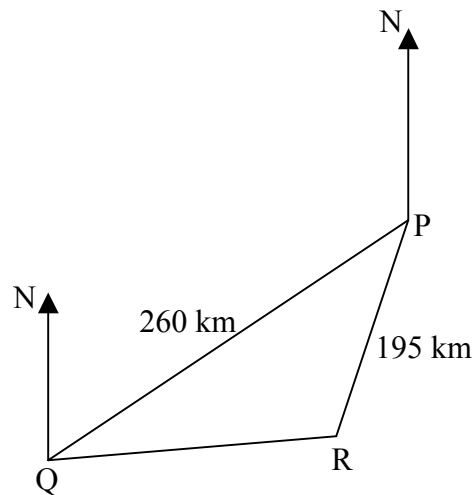
23. Two ships, Hero and Leander, leave port at the same time.
 Hero sails on a bearing of 040° at a speed of 20 kmph.
 Leander sails on a bearing of 110° at a speed of 16 kmph.

How far apart are the ships after $1\frac{1}{2}$ hours?



24. The diagram shows the position of 3 ports,
 P, Q and R.
 P is 260 km from Q.
 R is 195 km from P
 From Q the bearing of P is 050° .
 From P the bearing of R is 205° .

How far apart are airports Q and R?



25. Three television masts, A, B and C are situated
 in the countryside.
 B is 25km due south of A. C is 42 km from A.
 C is on a bearing of 110° from B.

Calculate the bearing of C from A.

