

Strathaven Academy



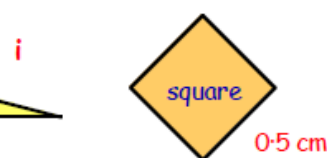
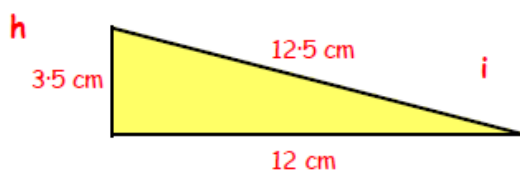
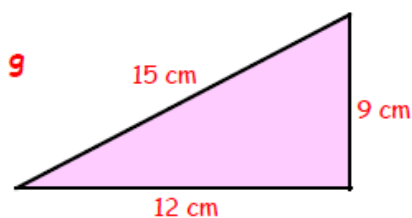
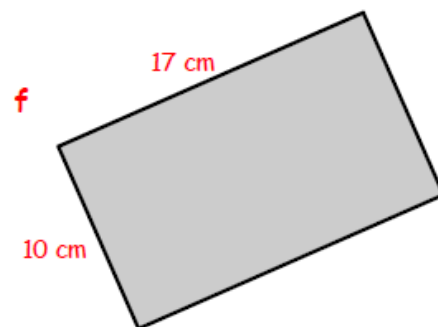
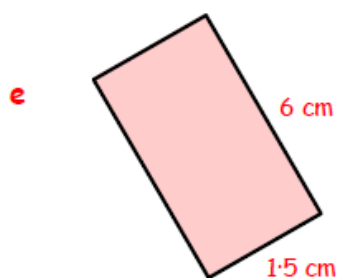
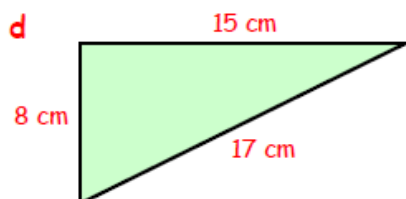
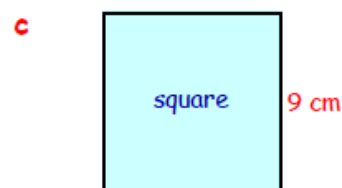
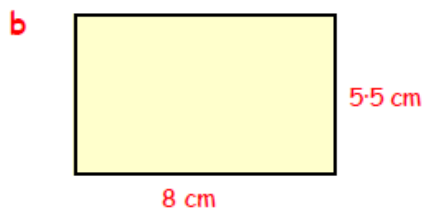
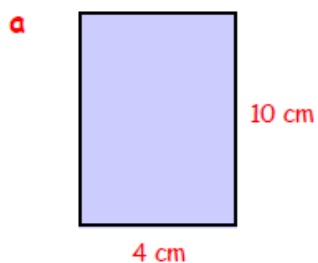
Level 3 – Unit 3

Homework

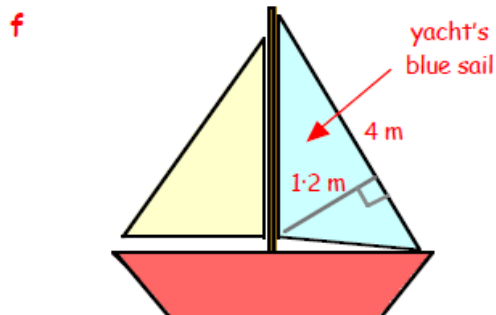
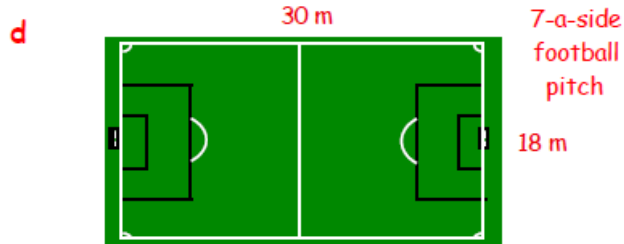
- Length and Area
- Ratio
- Angles
- Patterns

Length & Area

1. Calculate :- (i) the perimeter (ii) the area of each of these shapes :-



2. Calculate the areas of the objects shown below, using an appropriate formula :-



Ratio

1. In a butcher's shop window there are 103 mince pies, 79 curry pies and 58 steak pies.

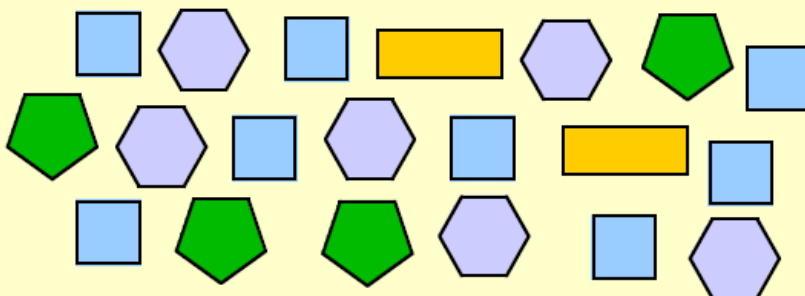
Write down the ratio of : -

- a curry pies : mince pies b steak pies : curry pies
c mince pies : steak pies d curry pies : total number of pies.



2. Write down each ratio in its **simplest form** : -

- a pentagons : hexagons
b squares : pentagons
c squares : rectangles
d quadrilaterals : hexagons
e quadrilaterals : other shapes



3. Write each of these ratios in its **simplest form** :-

- a 1 centimetre : 1 metre b 1 second : 1 minute c 10 minutes : 1 hour
d 30p : £6 e 1 day : 1 year f 50 centimetres : 2 metres
g £2:50 : £10 h days in February 2012 : days in June 2012.

4. In a week Rhona earns £450, Mary earns £500 and Vicky earns £650.

Write down each of the following ratios of wages in their **simplest form** : -

- a Rhona : Vicky b Mary : total wages c Vicky : Mary : Rhona.



- 5.



In Seaworld Centre, the ratio of sharks to seals is 3 : 5.

- a If there are 27 sharks, how many seals must there be ?
b If there are 40 seals, how many sharks are there ?

6. Melanie is making a model ship to a scale of 1 : 50.

- a Her model is 30 cm in height. What is the height of the **real** ship, in metres ?
b The real ship is 25 metres long. What length, in cm, should her **model** be ?



- 7.



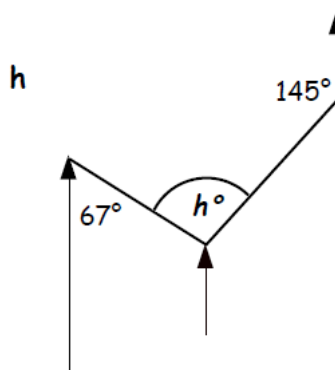
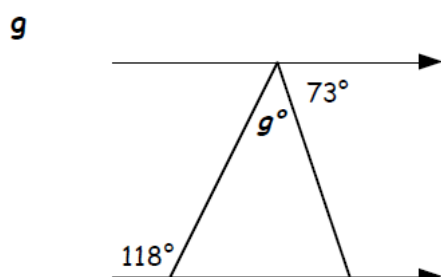
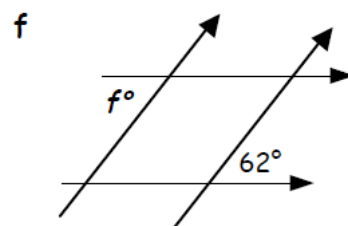
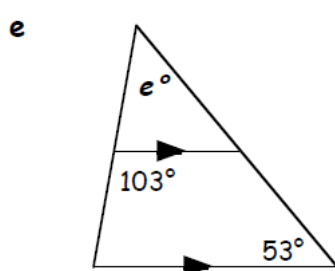
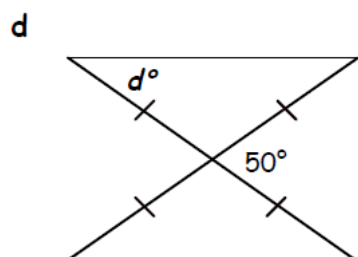
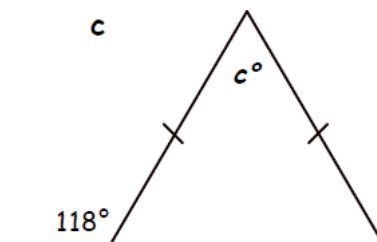
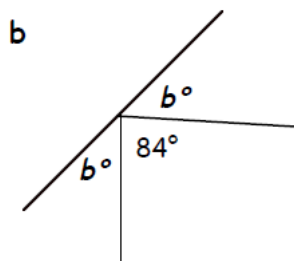
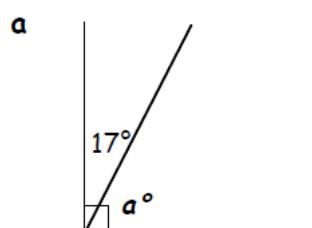
- a Share 27 rollos between Brian and Helen in the ratio of 2 : 1 so that Brian gets the larger share.
b If the rollos are shared in the ratio 5 : 4 with Brian still getting the larger share, how many **more** rollos will Helen get than in part a ?

Angles

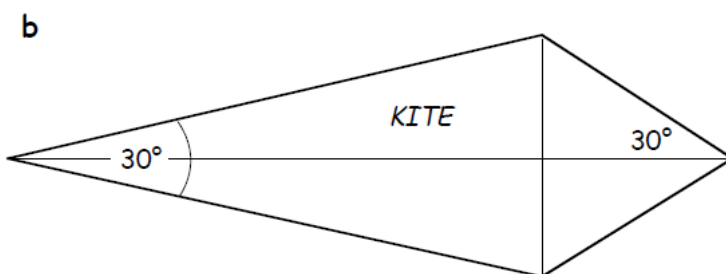
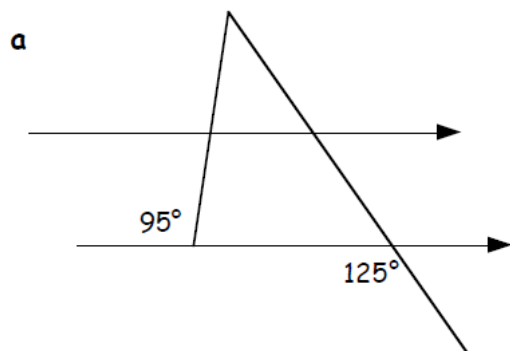
- What is the size of the angle which is **complementary** to 34° ?
 - Write down the **supplement** of 85° .



- Make a neat sketch of each diagram and find the size of the angles marked with a letter.



- Make a copy of these two diagrams and enter the sizes of **all** their angles.



Patterns



1. Write down the next **two** numbers in these sequences :-

a 1024, 256, 64, 16,

b 2, 6, 12, 20, 30,

c 16, 25, 36, 49, 64,

d 3, 7, 10, 17, 27,

2. The 3rd **triangular** number is 6. The fourth triangular number is 10 (the 3rd number, add 4). The 22nd triangular number is 253. Write down the 23rd triangular number.

3. The table below shows the cost of hiring a people carrier van in USA.

No. of day's hire (d)	1	2	3	4	5	6
Cost in Dollars (C)	35	55	75			



a How much will it cost to hire the van for 6 days ?

b Write down the formula for determining the cost of hiring a van in USA.

$$C = \dots\dots\dots$$

c How much will it cost to hire a van for 20 days ?

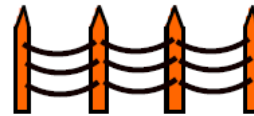
4. A fence is made using strips of wire and posts.



2 posts
3 strips



3 posts
6 strips



4 posts
9 strips

a Derive a formula for S (strips) in terms of P (posts). $S = \dots\dots\dots$

b How many posts would you need if you had 87 strips of wire ?

5. Shown below are four tables showing the connection between pairs of values.

Write down a **formula** or **rule** connecting the value letter in the table to the first value.

a

Q	1	2	3	4
A	1	4	9	16

$$A = \dots\dots$$

b

R	1	2	3	4
B	0	3	8	15

$$B = \dots\dots$$

c

S	1	2	3	4
C	1	8	27	64

$$C = \dots\dots$$

d

T	1	2	3	4
D	53	50	47	44

$$D = \dots\dots$$

Strathaven Academy

Level 3 – Unit 3

Revise and Review

- Length and Area
- Ratio
- Angles
- Patterns

This section provides further examples that may be used to revise prior to the Unit 3 Test or for consolidation and review as required on completion of the unit.

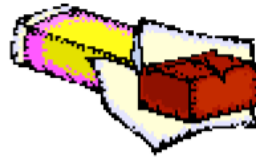
Length and Area

1. Change :-

- (a) 1.8 m to km (b) 7.05 mm to m (c) 100 m to km (d) 100 mm to km

2. I have a stick of chocolate 22.6 cm long.
I cut 6.4 cm from each end and eat them.

What length of chocolate am I left with ?

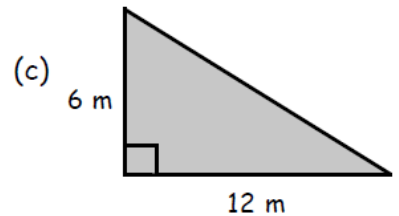
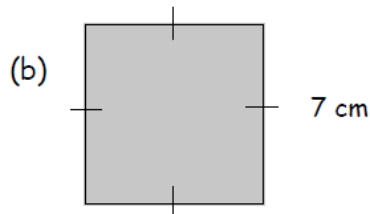
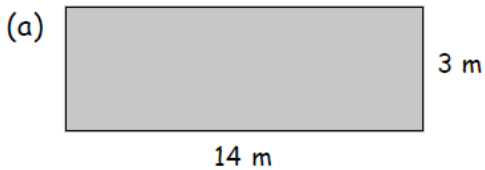


3. Calculate the perimeter of a rectangle with length 8 cm and breadth 3 cm.

4. A rectangle with length 5 cm has a 28 cm perimeter.

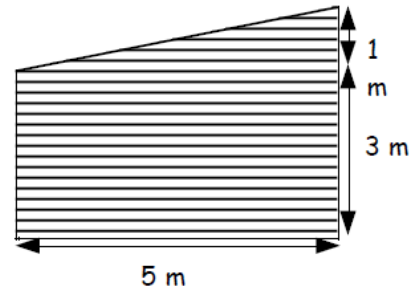
Calculate the breadth of the rectangle.

5. Calculate the area of :-



6. The side of a house is to be painted.
The paint costs £6.25 a litre and one litre
will cover an area of eight square metres.

How much will it cost to
paint the side of the house ?



Ratio

1. Look at the picture.

Write the ratio of :-

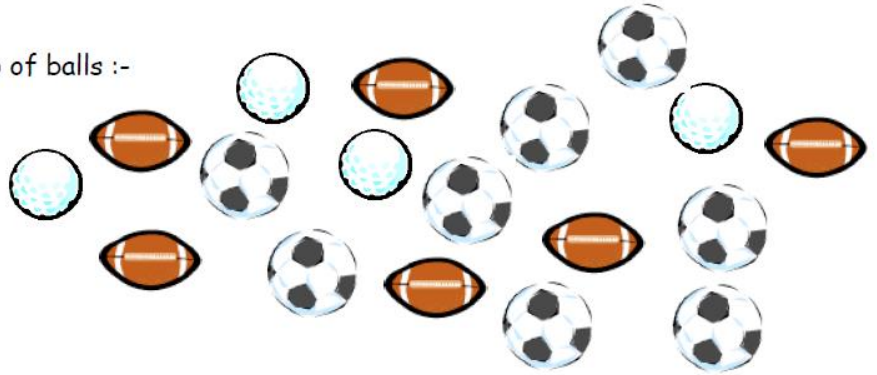
- (a) bats to birds
- (b) birds to butterflies
- (c) butterflies to birds
- (d) bats to butterflies



2. Look at the picture.

Write in simplest form the ratio of balls :-

- (a) golf to rugby
- (b) golf to football
- (c) rugby to football
- (d) golf to total
- (e) spherical to total.



3. Alex gets £12 pocket money, Bob £16 and Colin £18 each week.

Write in simplest form the ratio of pocket money of :-

- (a) Alex : Bob
- (b) Colin : Bob
- (c) Colin : Alex
- (d) Alex : total pocket money.

4. At the swimming pool the ratio of boys to girls is 4 : 5.

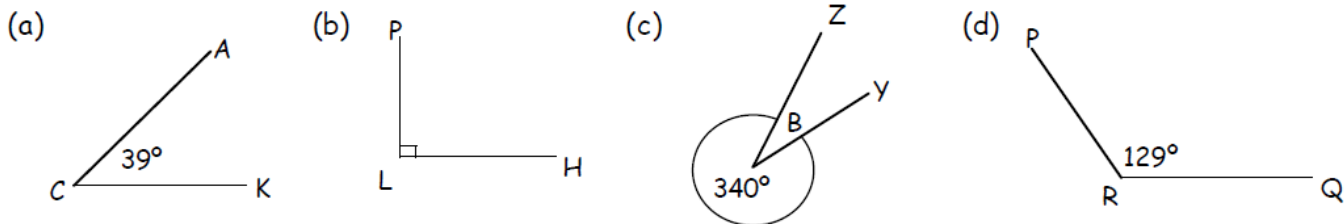
- (a) How many boys if there were 45 girls ?
- (b) How many girls if there were 48 boys ?
- (c) If there were a total of 81 children, how many girls were there ?



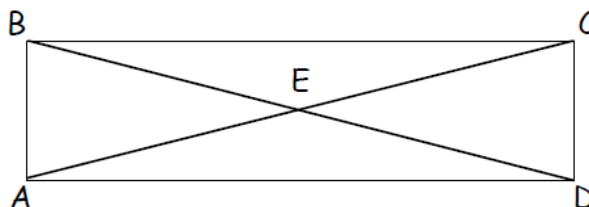
5. Write in simplest form $3\frac{1}{2} : 1\frac{1}{4}$.

Angles

1. Write the type and name of each angle shown :-
(e.g. acute $\angle ABC = 69^\circ$)

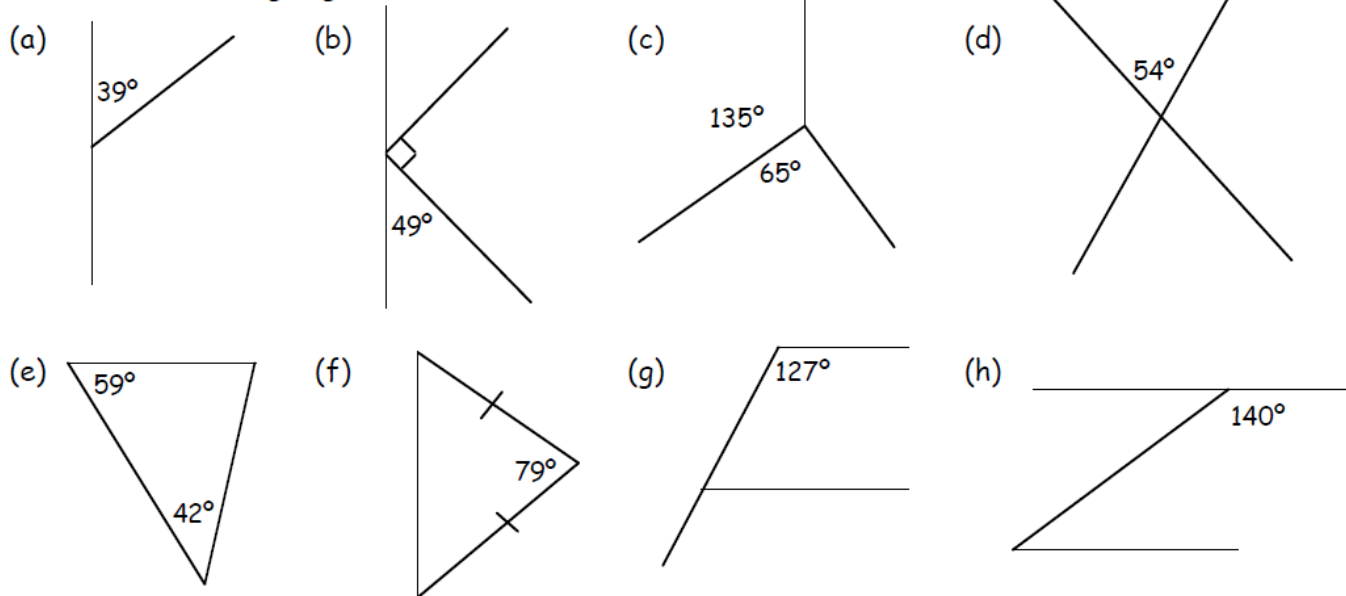


2. Name all the acute angles in this diagram.

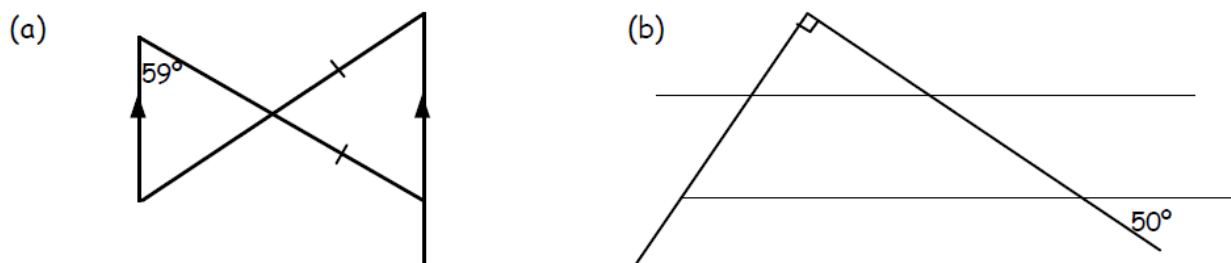


3. Make a neat rough sketch of each of the following diagrams.

Fill in all the missing angles.



4. Sketch each of the following and fill in all the missing angles :-



Patterns

1. Write the next two numbers in each sequence :-

(a) 8, 13, 19, 26, ...

(b) 91, 83, 75, 68, 62, ...

(c) 243, 81, 27, ...

(d) $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \dots$

2. Write the square numbers between 100 and 200.

3. Write the triangular numbers between 50 and 70.

4. Write a formula for each question below and find the 11th term.

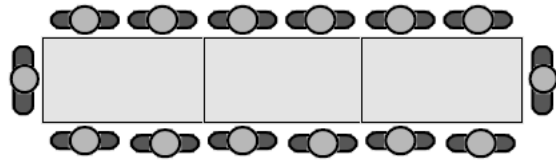
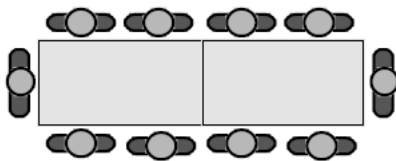
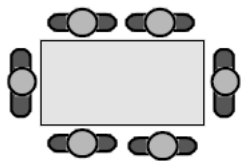
(a)

Days (D)	10	11	12	13
Hire cost (H)	15	17	19	21

(b)

(S)	7	8	9	10
(P)	67	78	89	100

A rectangular table seats 6 people, two tables seat 10, three tables seat



5. (a) Copy and complete the table.

No. of tables (T)	1	2	3	4	5	6
No. of people (P)	6	?	?	?	?	?

(b) Write a formula using symbols. ($P = \dots \times T + \dots$)

(c) Use the formula to find how many people can sit at 11 tables.

6. (a) Copy and complete the table of van hire charges.

No. of days (D)	1	2	3	4	5	6
No. of £ (C)	8	?	?	?	?	?



(b) Write a formula using symbols.

(c) Use the formula to find the cost for 2 weeks.

Answers

Length and Area

1. a 1800 m b 7050 mm c 0.1 km
 d 0.1 m
2. 9.8 cm 3. 22 cm
4. 6 cm Area : 48 cm^2
5. a 42 m^2 b 49 m^2 c 36 m^2
6. £18.75

Ratio

1. a 2 : 5 b 5 : 3 c 3 : 5 d 2 : 3
2. a 2 : 3 b 1 : 2 c 3 : 4 d 2 : 9
 e 2 : 3
3. a 3 : 4 b 9 : 8 c 3 : 2 d 6 : 23
4. a 36 b 60 c 40
5. 2 : 1

Angles

1. a acute $\angle ACK = 39^\circ$ b right $\angle PLH = 90^\circ$
 c reflex $\angle ZBY = 340^\circ$ d obtuse $\angle PRQ = 129^\circ$
2. $\angle BCE, \angle CBE, \angle BEA, \angle BAE, \angle EBA, \angle CED, \angle ECD,$
 $\angle EDC, \angle EAD, \angle EDA$
3. a 131° b 48° c 150°
 d $54^\circ, 126^\circ, 126^\circ$ e 79°
 f $50^\circ, 50^\circ$ g $127^\circ, 53^\circ$
 h $40^\circ, 40^\circ$

Patterns

1. a 34, 43 b 57, 53 c 9, 3
 d $\frac{1}{32}, \frac{1}{64}$
2. 324, 361, 400, 441, 484
3. 55, 66
4. a $H = 2D - 5$ (19) b $P = 11S - 10$ (122)
5. . a Tables 1 2 3 4 5 6
 People 6 10 14 18 22 26
 b $P = 4T + 2$ c 50
6. . a Days 1 2 3 4 5 6
 £ 28 38 48 58 68 78
 b $C = 10D + 18$ c £158