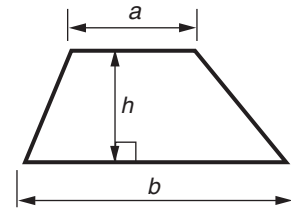
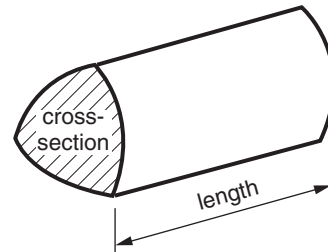


Formulae Sheet: Foundation Tier

Area of trapezium = $\frac{1}{2} (a + b)h$



Volume of prism = (area of cross-section) \times length



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1 Amber and Shell go to America on holiday.

- (a) They take this photo of a stretched limo.
The traffic cones are about a metre high.

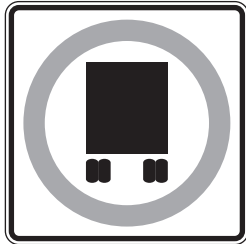



Estimate the **length** of the stretched limo.



(a) _____ m [1]

- (b) Here are some American traffic signs.

For each traffic sign put a tick in the square above the sign if it has reflection symmetry, and a cross if it does not.

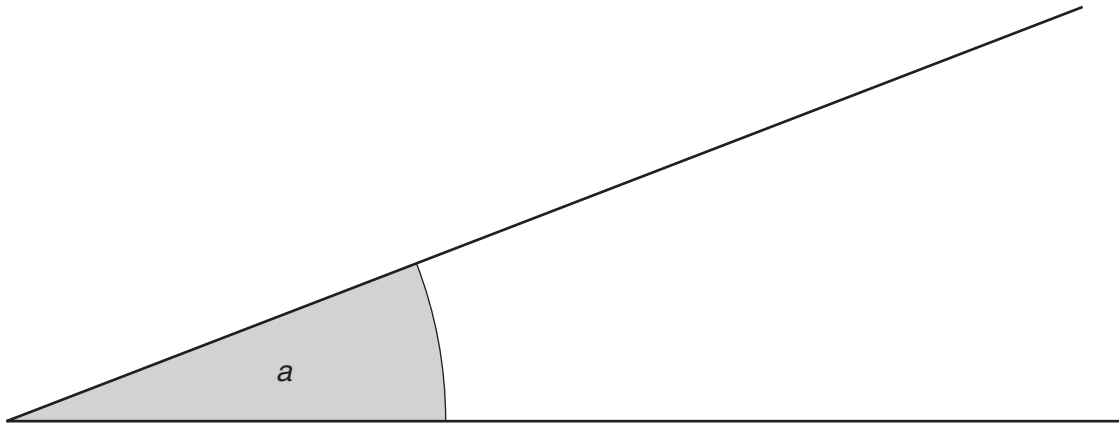
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For each sign put a tick in the circle below the sign if it has rotation symmetry, and a cross if it does not.

[3]

- (c) One of the steepest streets in the world is Hyde Street in San Francisco. This drawing shows the angle a which Hyde Street makes with the horizontal.

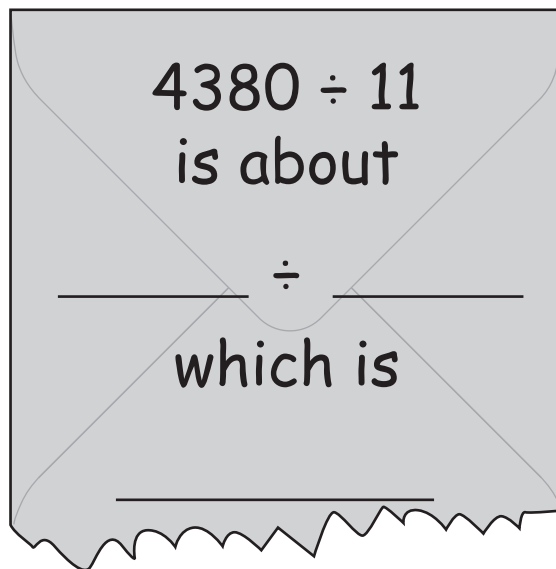
Measure the angle marked a .



(c) $a =$ _____ $^{\circ}$ [1]

- (d) On their 11-day holiday Amber and Shell travelled about 4380 miles. Amber wants to work out roughly how many miles this was a day.

Complete her rough “back of an envelope” estimation to work this out.



[1]

2 (a) Complete.

The value of 23 squared is _____ . [1]

(b) Work out.

(i) $4 \times (8 + 1)$

(b)(i) _____ [1]

(ii) $(4 \times 8) + 1$

(ii) _____ [1]

(iii) 10^3

(iii) _____ [1]

3 Amy grows vegetables on her allotment.

- (a) Amy grows potatoes from seed potatoes.
She buys 20 kg of seed potatoes.

1 kg of seed potatoes will produce
15 kilograms of potatoes to eat.

Seed potatoes cost £1.96 per kilogram.



- (i) How much will these seed potatoes cost?

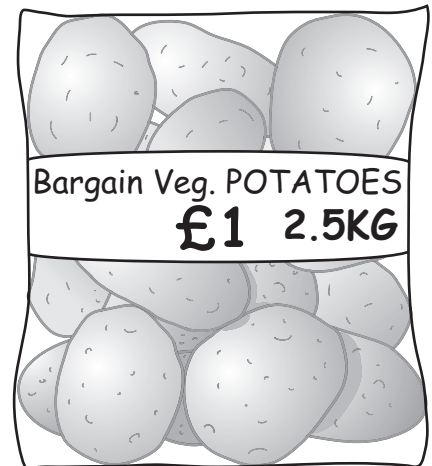
(a)(i) £ _____ [1]

- (ii) What weight of potatoes will they produce?

(ii) _____ kg [1]

- (iii)* At the local supermarket a 2.5 kg bag of potatoes costs £1.

How much in total could Amy save by buying 20 kg
of seed potatoes and growing her own potatoes?
You can ignore any other costs.



(iii) £ _____ [4]

- (b) Amy's allotment has an area of 250m^2 .
It is rectangular in shape and is 10 m wide.

(i) How long is Amy's allotment?

(b)(i) _____ m [1]

(ii) What length of fencing does Amy need to put a fence around her allotment?

(ii) _____ m [1]

- (c) Amy plans to grow celery from seed, but Bert in the next allotment says:



Celery is hard to grow. Two thirds of the seeds won't germinate. Of those that do, only half will grow into good quality celery.



Amy buys a packet of 24 celery seeds.

(i) How many of these will grow into good quality celery?

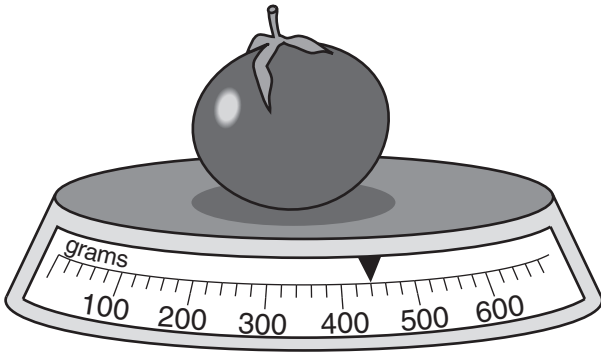
(c)(i) _____ [3]

(ii) What fraction of a packet of seeds will grow into good quality celery?

(ii) _____ [1]

(d) Amy weighs her heaviest tomato.

(i) How much does this tomato weigh?



(d)(i) _____ g [1]

(ii) Give your answer to part (i) in kilograms.

(ii) _____ kg [1]

(iii) In 1986 a tomato weighing 3.52 kg was grown – a world record.

How much heavier was this than Amy's heaviest tomato?

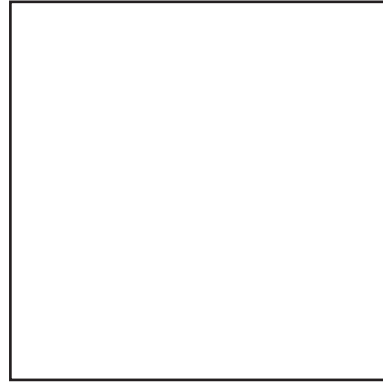
(iii) _____ kg [1]

(e) Amy's family used to spend £400 a year on fresh vegetables.
By growing their own they save 90% of this amount.

How much do they save in a year?

(e) £ _____ [2]

- 4 (a) Find the perimeter of this square.
Give your answer in centimetres.



(a) _____ cm [2]

- (b) A square has perimeter P cm and diagonals each of length d cm.
 P and d are connected by this formula.

$$P = d\sqrt{8}$$

Calculate the perimeter of a square with diagonals length 3 m.
Give your answer correct to 2 decimal places.

(b) _____ m [2]

- 5 Designer sports bags lose their value quickly.
In 2008 Carol bought a new *Go* bag for £80.



- (a) A year later the value of the bag had gone down by one quarter.

Complete this sentence.

The value of the bag had gone down by £ _____
and its value was £ _____ .

[2]

- (b) The value of the bag in 2010 was three quarters of its value in 2009.

What was the value of the bag in 2010?

(b) £ _____ [1]

- (c) Complete this sentence.

By 2010 Carol's *Go* bag had gone down by £ _____
from its 2008 price.

[1]

6 Some pairs of positive whole numbers fit **both** these conditions.

- The numbers add up to 50
- and**
- when multiplied together the numbers give an answer ending in 1.

For example, 7 and 43 is one such pair because

$$7 + 43 = 50$$

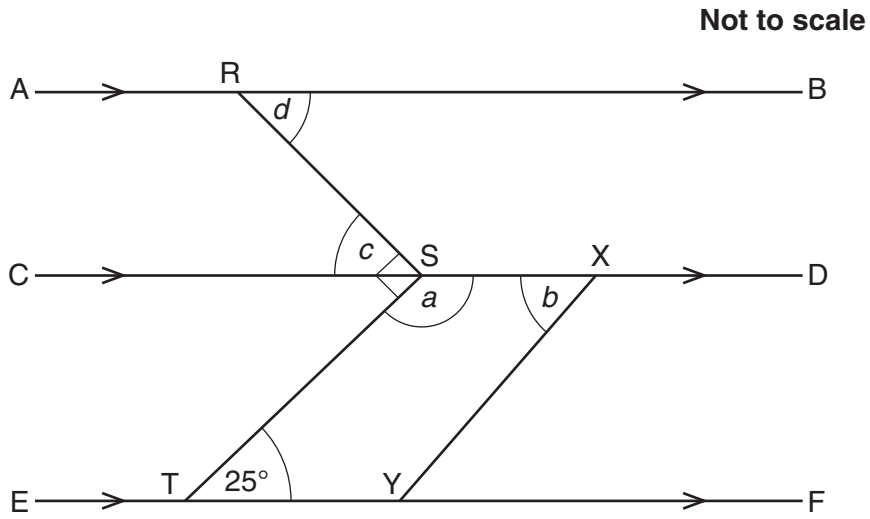
and

$$7 \times 43 = 301.$$

Find two **different** pairs of positive whole numbers which fit **both** the conditions.

_____ and _____ _____ and _____ [4]

- 7 The lines AB, CD and EF are parallel to each other.
 SXYT is a parallelogram.
 Angle RST is a right angle and angle STF is 25° .



Find the sizes of the angles a , b , c and d .

$$a = \text{_____}^\circ$$

$$b = \text{_____}^\circ$$

$$c = \text{_____}^\circ$$

$$d = \text{_____}^\circ \text{ [5]}$$

8 Here is a puzzle.

A school hires 2 minibuses and 3 coaches for a trip.

Each minibus seats x passengers.

Each coach seats $3x - 5$ passengers.

All the seats are occupied.

- (a) Write down and simplify an expression, in terms of x , for the total number of passengers.

(a) _____ [3]

- (b) (i) A total of 150 passengers go on the trip.

Form an equation in x and solve it.

(b)(i) _____ [3]

- (ii) How many passengers can be seated on each coach?

(ii) _____ [1]

9 In tower running people race each other to the tops of tall buildings using the stairs.



(a) Runners are awarded points depending on the tower and their finishing position. These points are reduced if fewer than 30 runners finish a race.

The number of points subtracted from each runner's points is:

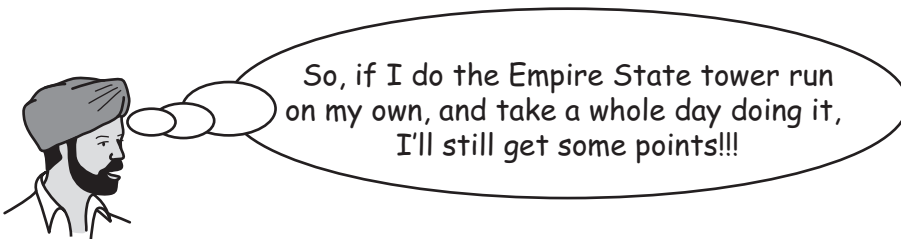
$$8 \times (30 - \text{number of runners who finish})$$

(i) Winning the Empire State tower run is worth 320 points when 30 or more runners finish.

How many points would winning this run be worth if only 25 people finish?

(a)(i) _____ [2]

(ii) Amrit is thinking about the race.



Is Amrit right?
Support your answer with some working.

_____ because _____

_____ [2]

- (b) This table shows some information about four towers and the record times to run up each tower.

	CN Tower	Taipai 101	Empire State	Emirate Tower
Steps	1776	2046	1576	1334
Climb height (m)	338	448	320	265
Time	640s	11 min 5 s	12 min 40s	500s
Runner	Cho	Erikson	Gold	Jameson

- (i) Which tower took the least time to run up?

(b)(i) _____ [1]

- (ii)* Which runner was the best out of the four?
Use the information in the table to decide and explain how you decided. [4]

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