

$$3 \quad y = 4x - 3t$$

$$x = 2$$

$$t = 5$$

(a) Work out the value of y .

$$y = 4x - 3t$$

$$y = 30$$

$$t = 2$$

(b) Work out the value of x .

(a) Solve $2x = 24$

(b) Solve $\frac{y}{3} = 15$

Hassan thinks of a number.

He multiplies the number by 3

He then adds 12

His answer is 60

(c) What number did Hassan think of?

Gemma has the same number of sweets as Betty.

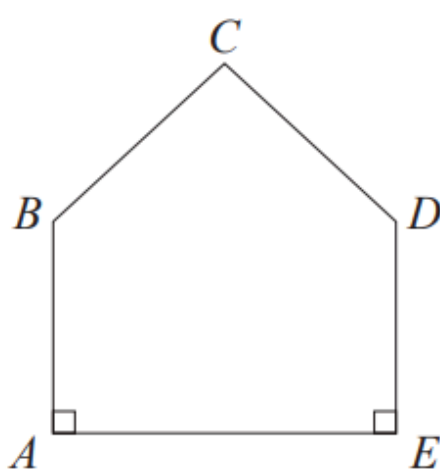
Gemma gives 24 of her sweets to Betty.

Betty now has 5 times as many sweets as Gemma.

Work out the total number of sweets that Gemma and Betty have.

The diagram shows a pentagon.

The pentagon has one line of symmetry.



$$AE = 4x$$

$$AB = 2x + 1$$

$$BC = x + 2$$

All these measurements are given in centimetres.

The perimeter of the pentagon is 18 cm.

(a) Show that $10x + 6 = 18$

(b) Find the value of x .

Amber earns £7 for each hour she works from Monday to Friday.
She earns £10 for each hour she works on Saturday.

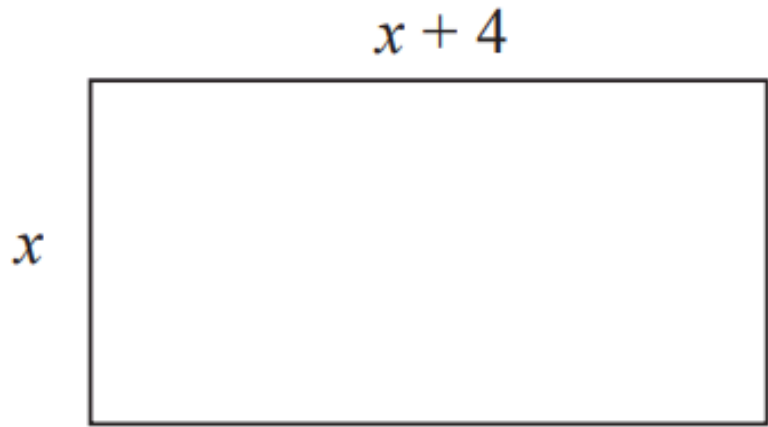
One week Amber worked for 4 hours on Saturday.
That week she earned a total of £180

(a) How many hours did Amber work that week?

Chris works for 7 hours each day from Monday to Friday.
He earns e pounds for each hour he works.

(b) Write down an expression, in terms of e , for the total amount, in pounds, that Chris earns from Monday to Friday.
Give your answer in its simplest form.

The diagram shows a rectangle.



All measurements are given in centimetres.

The perimeter of the rectangle is 45 cm.

Work out the value of x .

Work out the values of a and b in the identity

$$5(7x + 8) + 3(2x + b) \equiv ax + 13$$

Amy has x beads.

Billy has three more beads than Amy.

Carly has four times as many beads as Billy.

Circle the expression for the number of beads that Carly has.

$4x + 3$

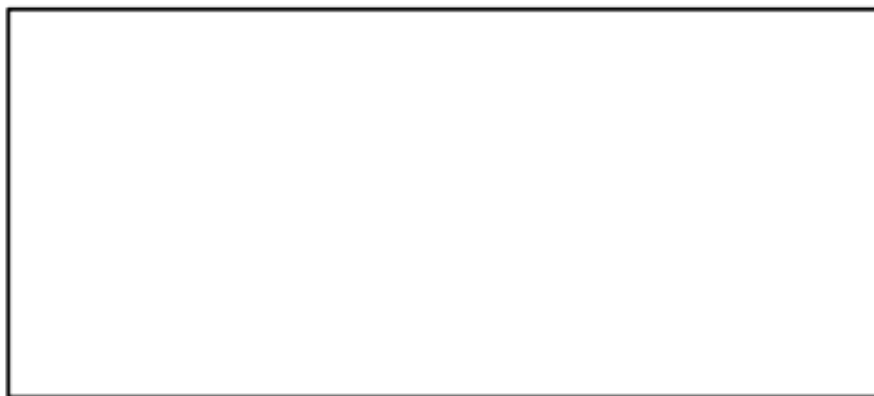
$3x + 4$

$4(x + 3)$

$x + 12$

The length of a rectangle is five times the width.

The area of the rectangle is 1620 cm^2



Work out the width of the rectangle.

e is 3 **more** than d .

f is 5 **less** than d .

- (a) Write an expression for e in terms of d .
- (b) Write an expression for f in terms of d .
- (c) Work out $e - f$

Simplify your answer.

In an office there are twice as many females as males.

$\frac{1}{4}$ of the females wear glasses.

$\frac{3}{8}$ of the males wear glasses.

84 people in the office wear glasses.

Work out the number of people in the office.

$$a - b = 5$$

- (a) Work out the value of $2(a - b)$
- (b) Work out the value of $7a - 7b$
- (c) Work out the value of $b - a$

Marcin buys 7 rulers and 15 crayons for £7.
A ruler costs 12p more than a crayon.

Find the cost of one crayon.

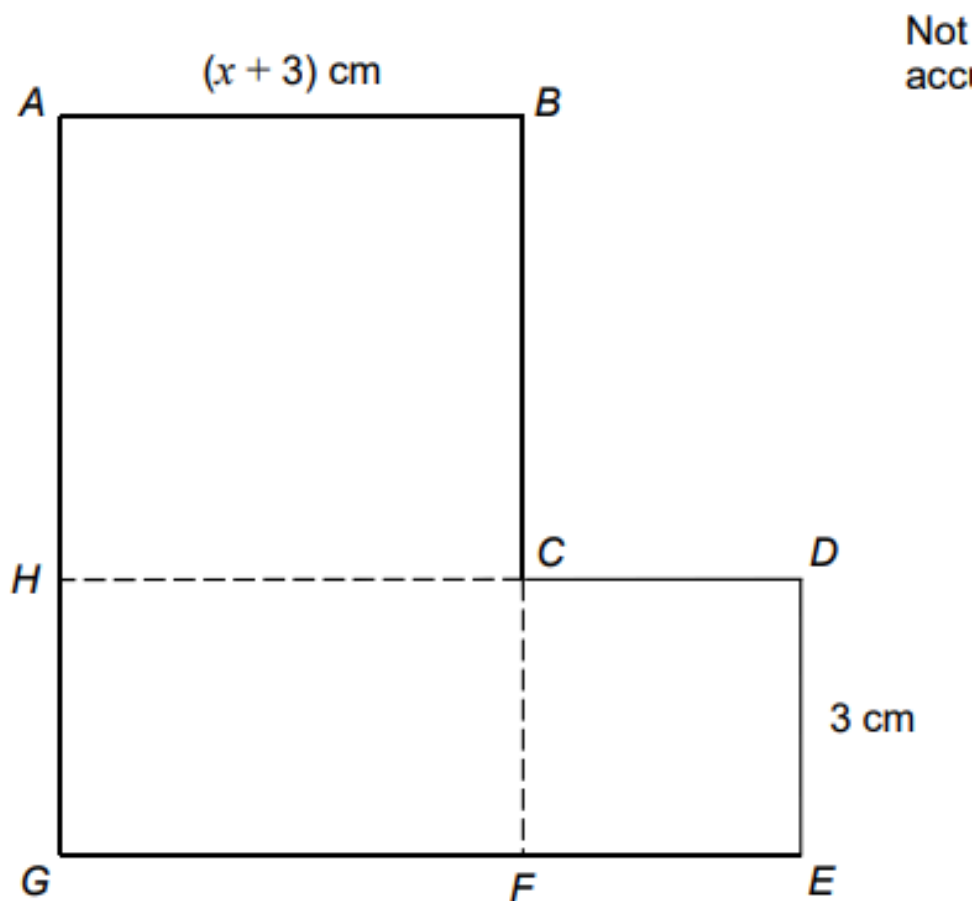
Given that $y^{18} \div y^6 = y^k$, find the value of k .

$ABCH$ is a square.

$HCFG$ is a rectangle.

$CDEF$ is a square.

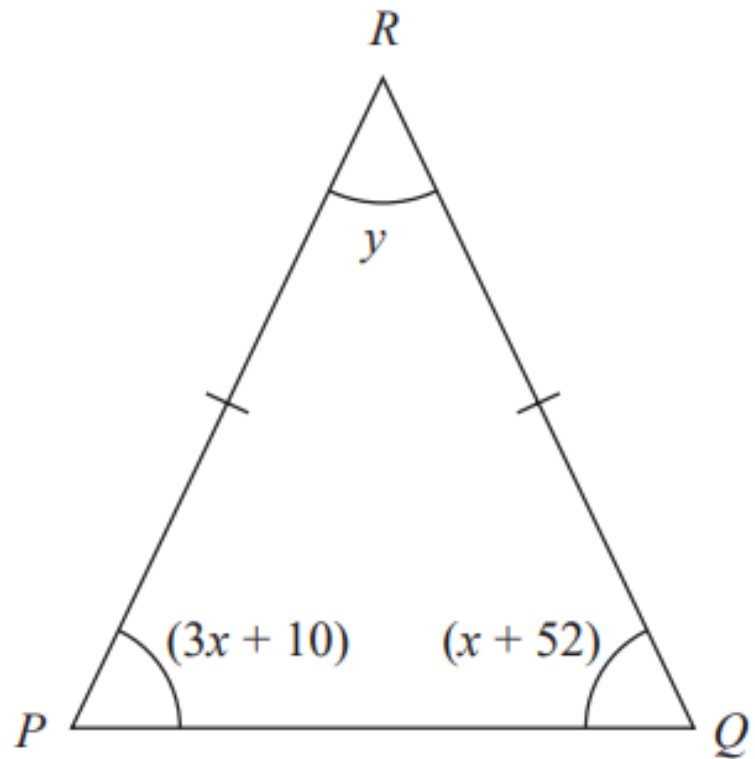
They are joined to make an L-shape.



Not
acci

Show that the total area of the L-shape, in cm^2 , is $x^2 + 9x + 27$

The diagram shows the triangle PQR .



I
a

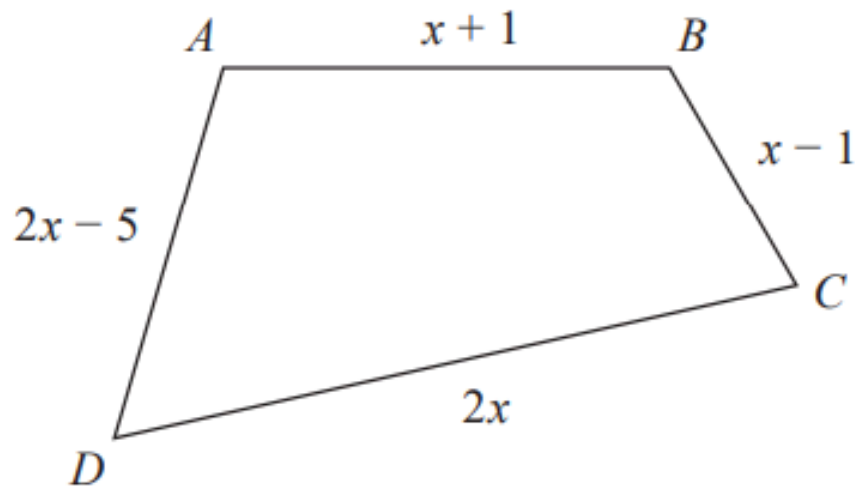
In the diagram, all the angles are in degrees.

$$RP = RQ$$

Find the value of y .

Show clear algebraic working.

5 Here is a quadrilateral $ABCD$.



All the measurements are in centimetres.

The perimeter of $ABCD$ is 52 centimetres.

Work out the length of DC .

(a) Simplify $4c + 7d + 3c - d$

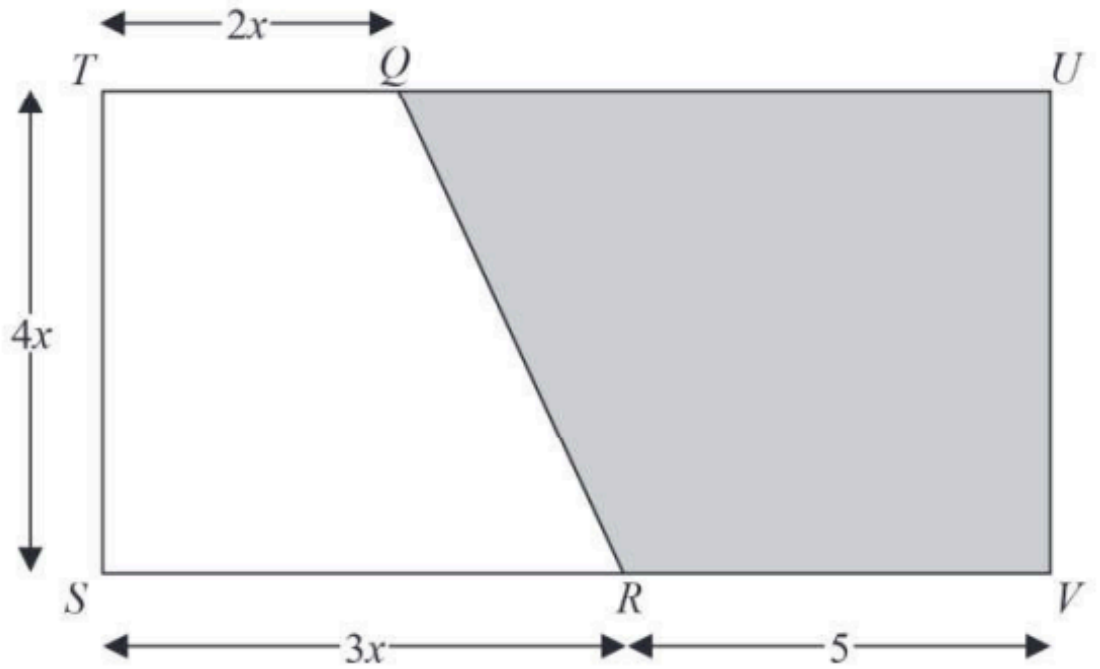
(b) Solve $5(2m - 6) = 40$

There are x sweets in a box.

There are y sweets in a packet.

(c) Write an expression, in terms of x and y , for the total number of sweets in 3 boxes and 2 packets.

The diagram shows rectangle $STUV$.
 TQU and SRV are straight lines.
All measurements are in cm.



The area of trapezium $QUVR$ is $A \text{ cm}^2$

Show that $A = 2x^2 + 20x$

(a) Factorise $6x - 15$

There are 200 bolts in each box of bolts.

Samira buys c boxes of bolts.

Samira uses the bolts she bought to fill packets of bolts.

There are 50 bolts in each packet of bolts.

Samira sells d packets of bolts.

The total number of bolts Samira has left is T

(b) Write down a formula for T in terms of c and d

2 Alisa, Jena and Mikael each pick cucumbers.

Alisa picks C cucumbers.

Jena picks 5 fewer cucumbers than Alisa.

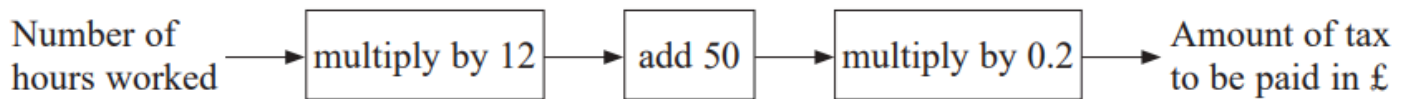
Mikael picks twice as many cucumbers as Alisa.

The total number of cucumbers picked by Alisa, Jena and Mikael is T

Find a formula for T in terms of C

Give your formula in its simplest form.

Molly uses this number machine to work out the amount of tax that she has to pay on the money she earns.



When Molly works n hours the amount of tax she has to pay is $£T$

Find a formula for T in terms of n

3 cups each contain 200 millilitres of water.

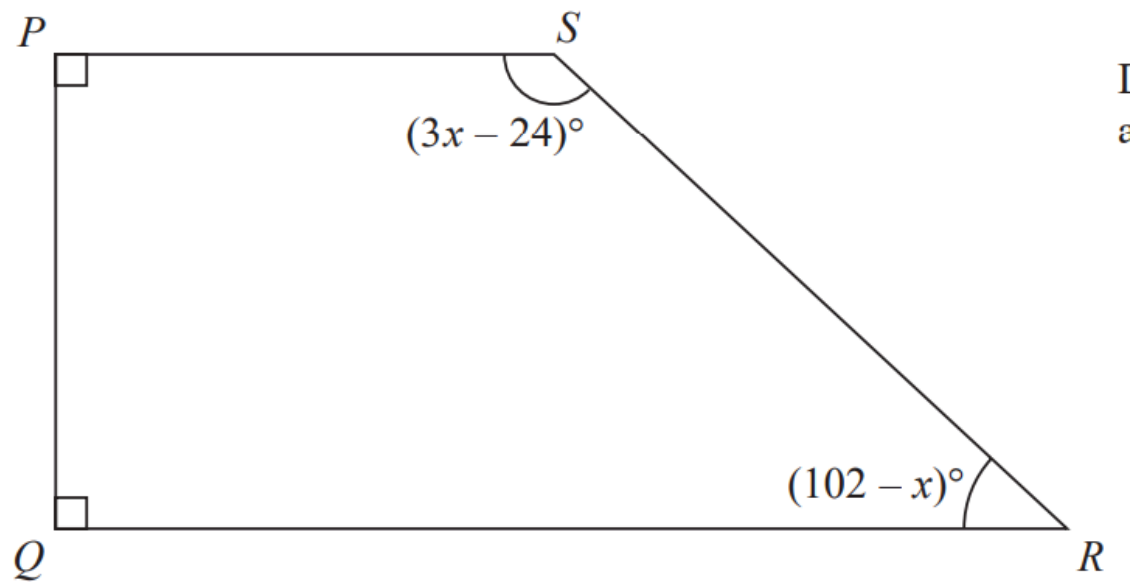
4 jugs each contain x millilitres of water.

Emma pours all the water from the 3 cups and the 4 jugs into a container.

The total amount of water that Emma pours into the container from the 3 cups and 4 jugs is 3.5 litres.

Work out the value of x

The diagram below shows the trapezium $PQRS$



Angle PQR and angle QPS are right angles.

Find the value of x

Naomi has b bags of apples and c crates of apples.

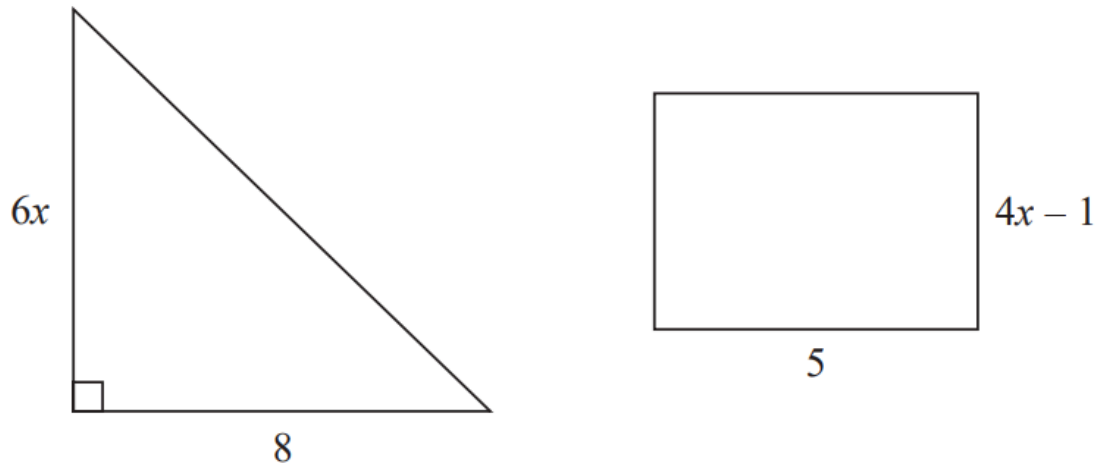
There are 5 apples in each bag.

There are 28 apples in each crate.

Naomi has a total of T apples.

Write a formula for T in terms of b and c .

Here is a triangle and a rectangle.



All measurements are in centimetres.

The area of the triangle is 10 cm^2 greater than the area of the rectangle.

Work out the value of x .