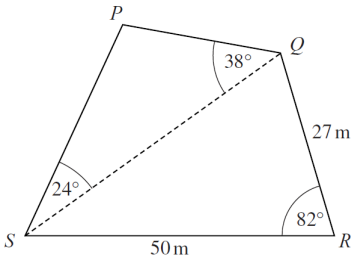
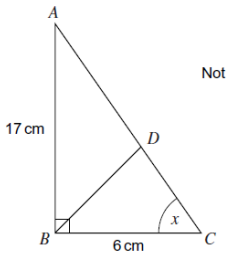
The diagram shows the plan of a field $PQRS$.

1.



Calculate the length of PS.

2. ABC is a right-angled triangle.
$AB = 17$ cm and $BC = 6$ cm
The line BD bisects the angle ABC.

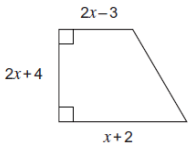


Not drawn accurately

) Write down the value of tan x.

Calculate the length BD.

3. Here is a trapezium.
All lengths are in metres.

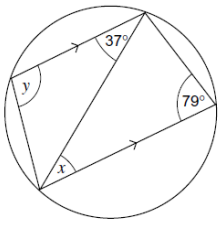


The area of the trapezium is $20\,m^2$.

Show that $3x^2 + 5x - 22 = 0$

What is the value of x?

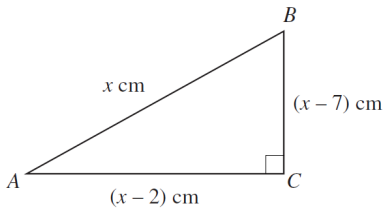
4.



Not drawn accurately

Find the missing angles, giving a reason

5. The hypotenuse of triangle ABC is x cm.
The other sides are $(x - 2)$ cm and $(x - 7)$ cm.



(a) Show that $x^2 - 18x + 53 = 0$
Find the length of the hypotenuse to 2.d.p

6. Find t $\frac{2t + 1}{3} + \frac{5 - t}{4} = 3$

Triangle ABC is isosceles.
One angle is $x°$
Another angle is $4x°$

Find the **two** possible values of x.

8. Using a graph, find the points of intersection of
y=x(x+3) and y=2x+1 [-4<x<2,-2<y<10]

9. An equable shape is a shape where the perimeter is equal to its area.

EG a square is equable if

Area = Perimeter
x^2 = 4x
solving gives x=4.

So a 4x4 square is equable.

a) What is the radius of an equable circle?
b*) What is the side length of an equable equilateral triangle? [Hard, good luck!]