## **Mixed Exercise 4**

1	
1	

(a)	Show that	$\frac{4}{x} + \frac{2}{x-1}$	simplifies to	$\frac{6x-4}{x(x-1)}$

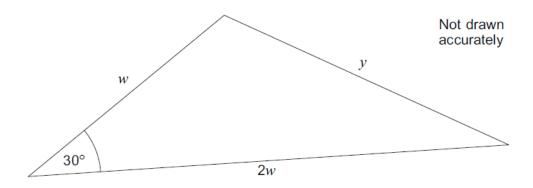

(2 marks)

(b) Hence, or otherwise, so	olve $\frac{4}{x} + \frac{2}{x-1} = 3$
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Give your solutions to 3 significant figures.

Answer ...... (5 marks)

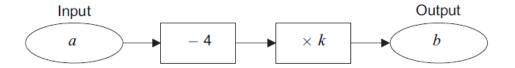
The area of this triangle is  $18\,\mathrm{cm}^2$ .

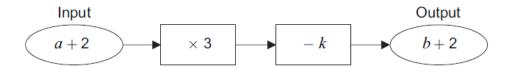


Work out y.

 $y = \dots$  cm (5 marks)

Here are two number machines.



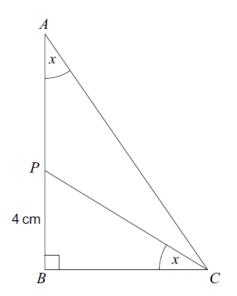


Work out $a$ in terms of $k$ .
To manufact
$a = \dots $ (6 marks)

4.

	e value of $x$ is a value of $y$ is					
x =	: <b>y</b>					
Wo	rk out $\frac{t}{w}$					
Giv	e your answe	er as a decin	nal.			
		$\frac{t}{w} = \dots$		 	(4	marks)
5.						
Solve	$\sqrt{(33+)}$	$+\sqrt{x}$ ) = 6				
			<i>x</i> =	 	(3	marks)

ABC is a right-angled triangle. P is a point on AB.



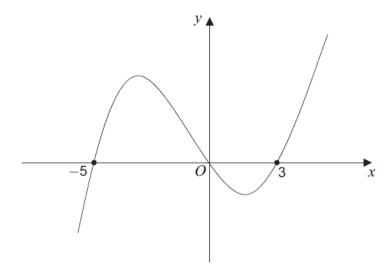
Not drawn accurately

$BP = 4  \mathrm{cm}$	and	$\tan x = \frac{2}{3}$
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(a)	Work out the length of $BC$ .
	Answer cm (2 marks)
(b)	Work out the length of $AP$ .
	Answer

7.

Here is a sketch of a cubic function y = f(x)



(a) Use the sketch to write down the **three** linear factors of f(x).

Answer,	,		(2 marks)
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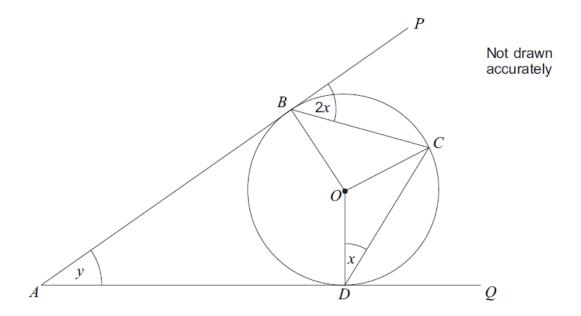
**(b)** You are given that  $f(x) = x^3 + bx^2 + cx$ 

Work out the values of b and c.


$$b = \dots, c = \dots$$
 (2 marks)

ABP and ADQ are tangents to the circle, centre O.

 ${\cal C}$  lies on the circumference of the circle.



Prove that $y = 2x$
Give reasons for any statements you make.
(6 marks

9.	Make $x$ the subject of the formula $\frac{a+2x}{a-x} = n$
	Answer
10.	
	Solve $y(\sqrt{3} - 1) = 8$
	Give your answer in the form $a+b\sqrt{3}$ where $a$ and $b$ are integers.
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(a)	Show that	$(x+7)^2 - (x-3)^2$	simplifies to	20(x+2)	
	•••••				
	•••••				(3 marks)
(b)	Hence, or oth	erwise, work out	107 <sup>2</sup> – 97 <sup>2</sup>		
		Answer			(2 marks)