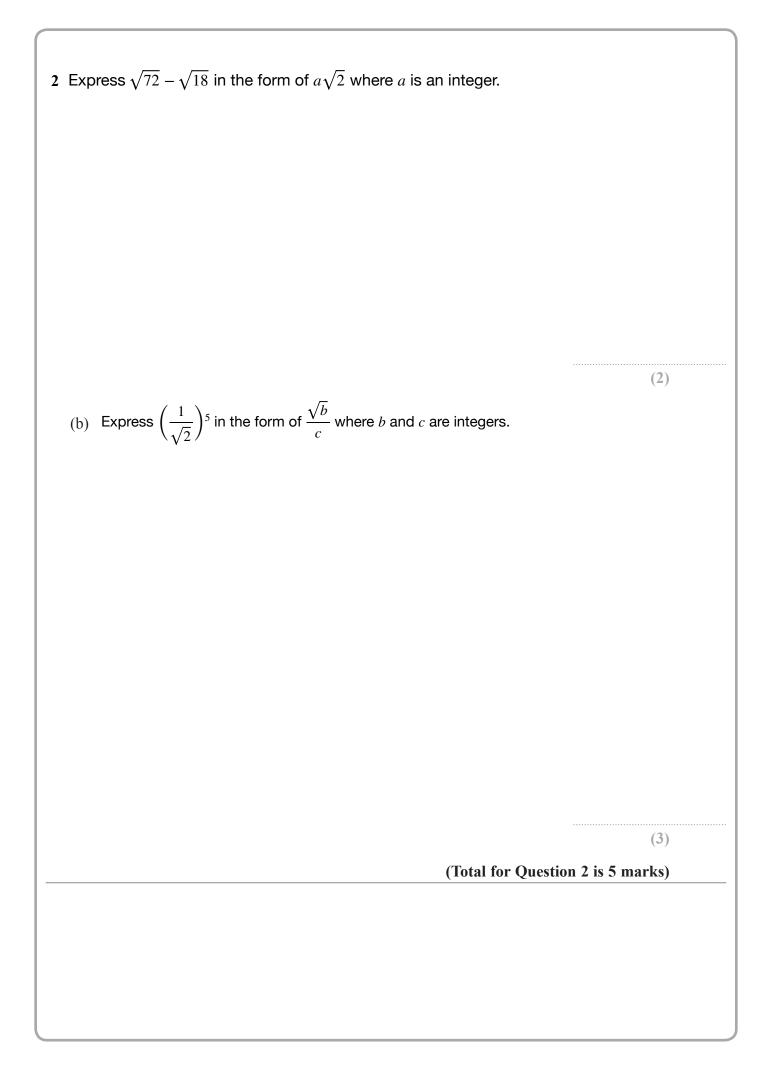
Mock Grade 8/9

Maths Booklet 2

Paper 1H Non-Calculator

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1	Given that		
	find the possible values of x .	$x^2:(x+4)=2:3$	
	1		
		(Total for Question 1 is 4 marks)	



3	Given that $2x^2 - 8x + 1 = a(x - b)^2 - c$ for all values of x ,	
	(i) find the value of a , b and c .	
	$a = \dots$	
	$b = \dots$	
	$c = \dots$	
	(2)	
	(ii) Hence write down the coordinates of the turning point on the graph of $y = 2x^2 - 8x + 1$	
		`
	(, (1)	<i>)</i>
_	(Total for Question 3 is 3 marks)	_



 $\mathbf{5}$ The functions f and g are such that

$$f(x) = 5x - 2$$
 and $g(x) = 2x^2 + 3$

(a) Find $f^{-1}(x)$

$$f^{-1}(x) =$$
 (2)

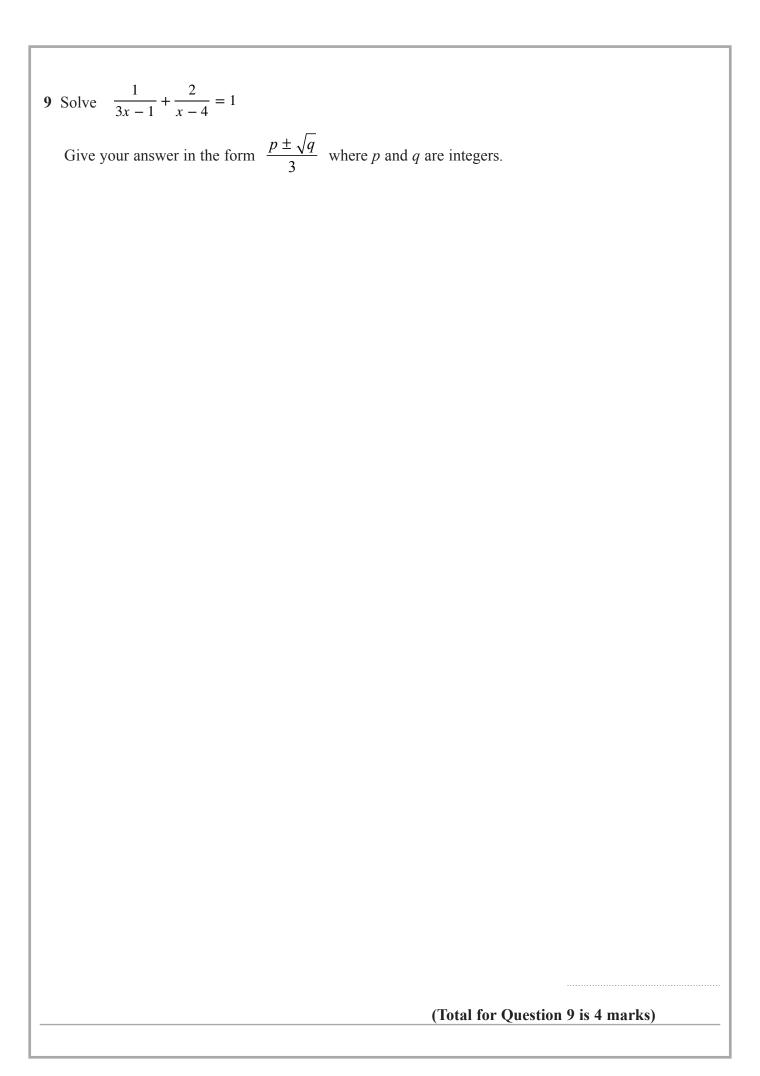
Given that 2fg(x) = gf(x),

(b) show that $6x^2 - 8x - 3 = 0$

6	There are only r red counters and g green counters in a bag.
	A counter is taken at random from the bag.
	The probability that the counter is green is $\frac{4}{7}$
	The counter is put back in the bag.
	3 more red counters and 2 more green counters are put in the bag. A counter is taken at random from the bag.
	The probability that the counter is green is $\frac{9}{20}$
	Find the number of red counters and the number of green counters that were in the bag originally.
	red counters
	green counters
	(Total for Question 6 is 5 marks)







10	The centre of a circle is the point with coordinates $(-3, 5)$
-0	The point A with coordinates $(8, 9)$ lies on the circle.
	Find an equation of the tangent to the circle at A .
	Give your answer in the form $ax + by + c = 0$ where a, b and c are integers.
	(Total for O 4' 10 to 4 1)
	(Total for Question 10 is 4 marks)