1. Find the **exact** solution of the equation  $9^{2x} = 27^{(1-x)}$ .

Working:	
	Answer:
	(Total 6 marks)

- 2. (a) Given that  $\log_3 x \log_3 (x 5) = \log_3 A$ , express A in terms of x.
  - (b) Hence or otherwise, solve the equation  $\log_3 x \log_3 (x 5) = 1$ .

Working:	
	Answers:
	(a)
	(b)
	(Total 6 marks)

_	
<b>3.</b>	Let $p = \log_{10} x$ , $q = \log_{10} y$ and $r = \log_{10} z$ .
J.	Let $p = \log_{10} x$ , $q = \log_{10} y$ and $r = \log_{10} z$ .

Write the expression  $\log_{10} \left( \frac{x}{y^2 \sqrt{z}} \right)$  in terms of p, q and r.

Working:		
	Answer:	
	Answer.	

4. Let  $a = \log x$ ,  $b = \log y$ , and  $c = \log z$ .

Write  $\log \left( \frac{x^2 \sqrt{y}}{z^3} \right)$  in terms of a, b and c.

Working:		
	Answer:	

(c) $\log_{25} x$	
Working:	
	(a)
	(b)(c)
	(T) 4.16
	(10tal 6
	(10tal 6
Solve the equation $\log_{27} x = 1$ -	- $\log_{27}(x-0.4)$ .
Solve the equation $\log_{27} x = 1$ - <i>Working:</i>	

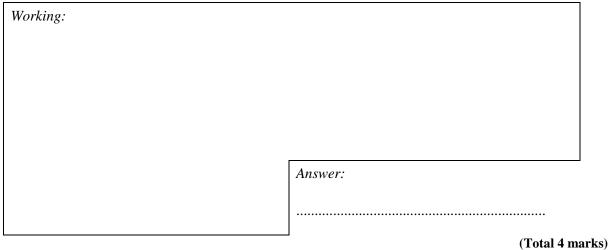
Given that  $\log_5 x = y$ , express each of the following in terms of y.

5.

Solve the equation  $\log_9 81 + \log_9 \frac{1}{9} + \log_9 3 = \log_9 x$ . 7.

Working:	
	Answer:

Let  $\log_{10}P = x$ ,  $\log_{10}Q = y$  and  $\log_{10}R = z$ . Express  $\log_{10}\left(\frac{P}{QR^3}\right)^2$  in terms of x, y and z. 8.



(Total 4 marks)

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9.	If $\log_a 2 = x$ and $\log_a 2 = x$	$_{1}$ 5 = y, f1	nd in terms	of x and y,	expressions for

- (a)  $\log_2 5$ ;
- (b) log<sub>a</sub> 20.

Working:	
	Answers:
	(a)
	(b)
	(Total 4 mar

(Total 4 marks)

10. Solve the equation  $9^{x-1} = \left(\frac{1}{3}\right)^{2x}$ .

Working:	
	Answer:

(Total 4 marks)

	Answer:
Working:	

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