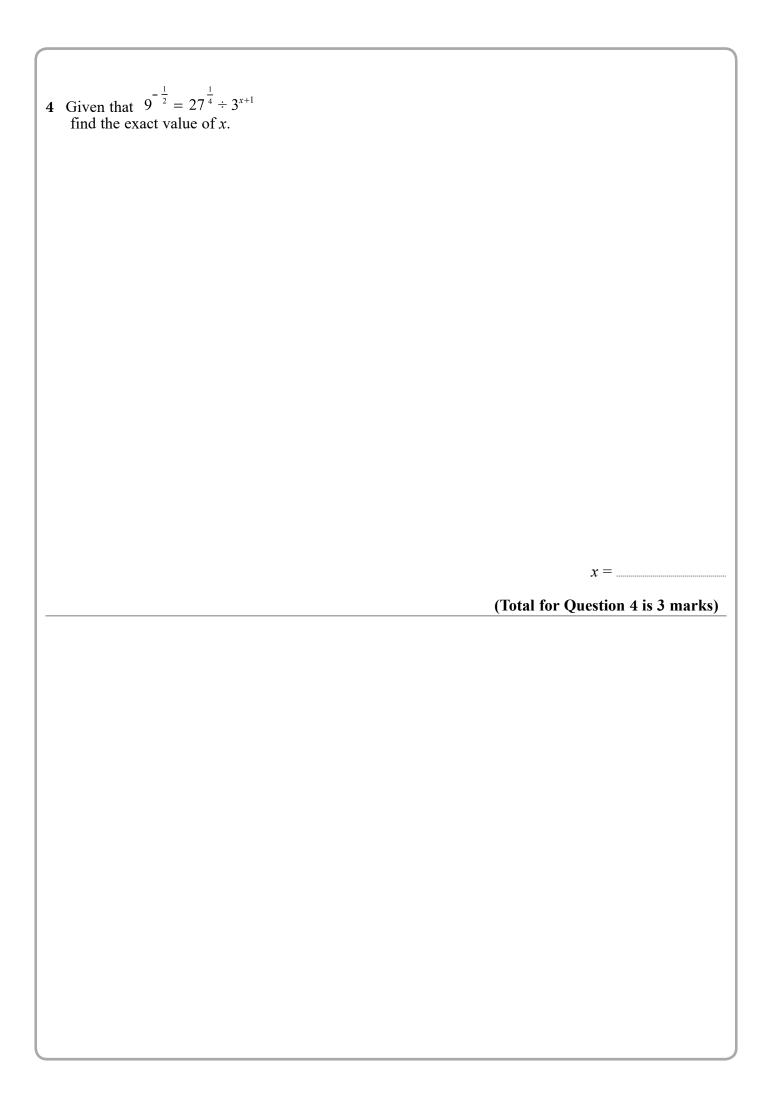
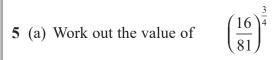
1		
	(a) Find the value of $\sqrt[4]{81 \times 10^8}$	
		(2)
	1	(2)
	(b) Find the value of $64^{-\frac{1}{2}}$	
		(2)
	$3^n$	
	(c) Write $\frac{3^n}{9^{n-1}}$ as a power of 3	
		(2)
	(Total for Questio	n 1 is 6 marks)

2	
	$16^{\frac{1}{5}} \times 2^x = 8^{\frac{3}{4}}$
	Work out the exact value of $x$ .
	(Total for Question 2 is 3 marks)
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3	3			
	$\left(ax^6\right)^{\frac{1}{n}}=7x^3$			
	Work out the value of $a$ and the value of $n$ .			
	<i>a</i> =			
	$n = \dots$			
	(Total for Question 3 is 2 mar	ks)		
		,		





(2)

$$3^a = \frac{1}{9} \qquad \qquad 3^b = 9\sqrt{3} \qquad \qquad 3^c = \frac{1}{\sqrt{3}}$$

(b) Work out the value of a + b + c

(2)

(Total for Question 5 is 4 marks)

(a) Simplify  $8^2 \times \sqrt[3]{4^6}$ 

Give your answer in the form  $2^a$  where a is an integer.

Show each stage of your working clearly.

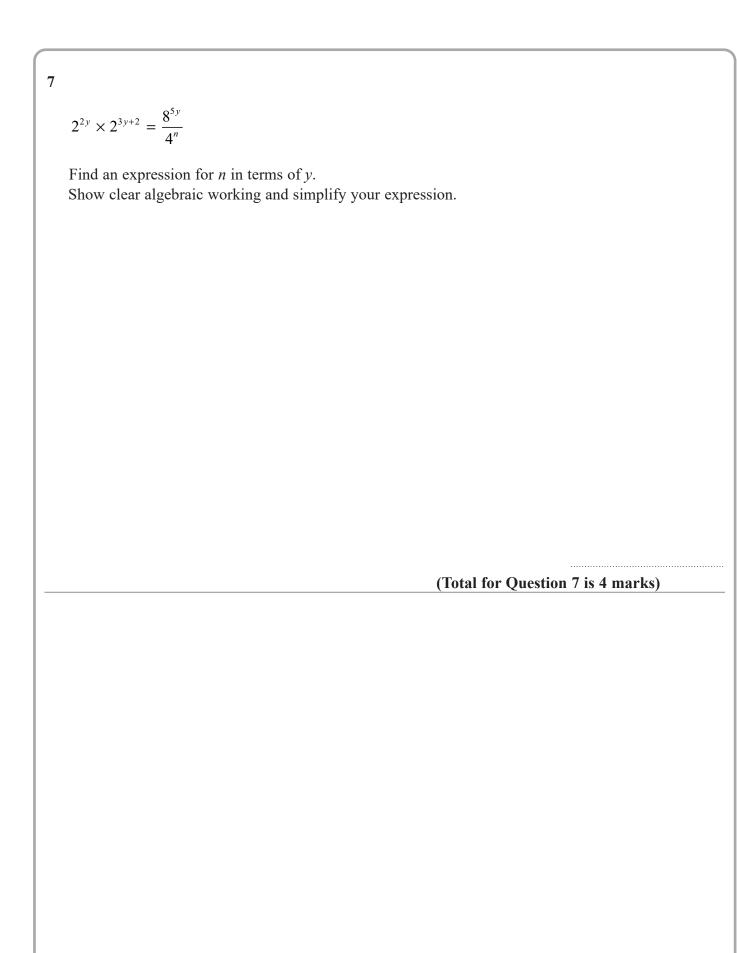
(3)

Given that  $n^{\left(-\frac{4}{5}\right)} = \left(\frac{1}{2}\right)^4$  where n > 0

(b) find the value of n.

 $\eta = \dots$ 

( ' )



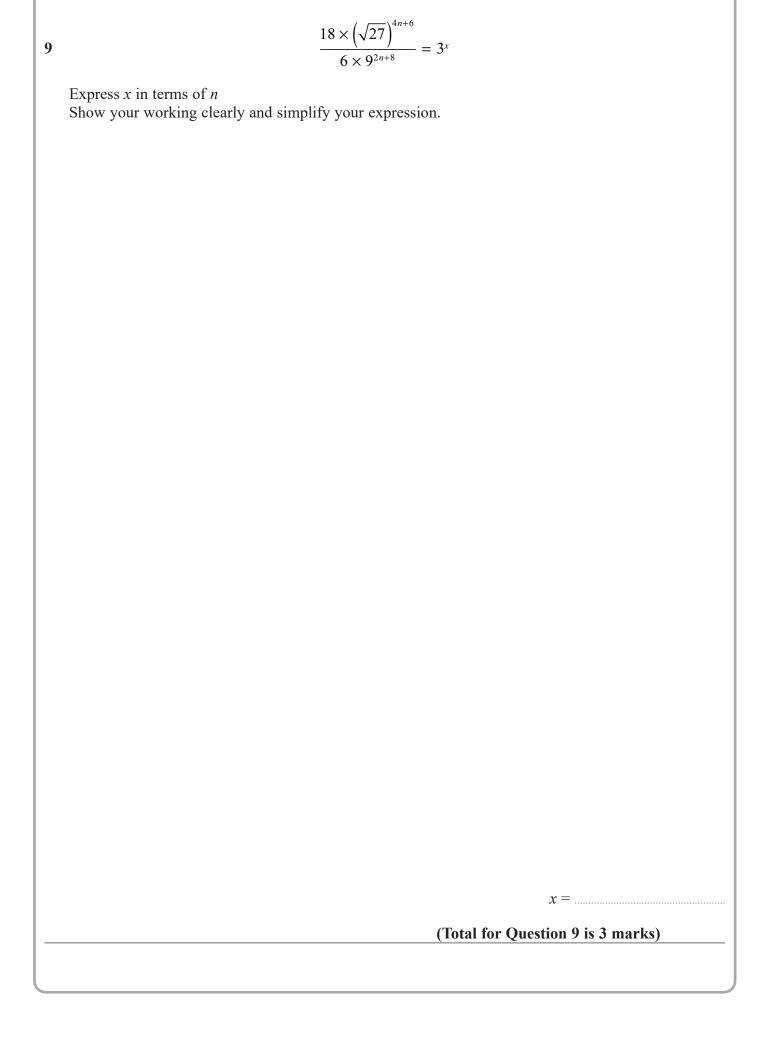
8	(a)	$\sqrt{2} \div \frac{8^3}{16^{\frac{3}{2}}} = 2^n$
		Work out the value of <i>n</i> Show your working clearly.



(b) Find 4% of  $4.5 \times 10^{157}$  Give your answer in standard form.

(3)

(Total for Question 8 is 6 marks)



10	Find the values of <i>n</i> such that		
		104" 23("2 5") 53(1	2)
		$\frac{10^{4n} \times 2^{3(n^2 - 5n)} \times 5^{2(1-n)}}{20^2}$	$\frac{1}{1} = 1$
		20-	
	Show clear algebraic working.		
			(Total for Question 10 is 5 marks)
			(