1 (a) Write down the value of $100^{\frac{1}{2}}$	<u>Autumn 2017 Paper 1 Q10</u>
(b) Find the value of $125^{\frac{2}{3}}$	(1)
	(2)
	(Total for Question 1 is 3 marks)

<u>Autumn</u>	2017	Paner	2	0
Autumn	2017	<u>1 uper</u>	4	\mathcal{L}^{\prime}

- $2 p^3 \times p^x = p^9$
 - (a) Find the value of x.

$$x =$$
 (1)

$$(7^2)^y = 7^{10}$$

(b) Find the value of y.

$$y =$$
 (1)

 $100^a \times 1000^b$ can be written in the form 10^w

(c) Show that w = 2a + 3b

(2)

(Total for Question 2 is 4 marks)

3	(a) Find the value of $81^{-\frac{1}{2}}$	<u>Summer 2017 Paper 1 Q12</u>
	(b) Find the value of $\left(\frac{64}{125}\right)^{\frac{2}{3}}$	(2)
		(2)
		(Total for Question 3 is 4 marks)

Summ	er 2017	' Paper	2 Q18

	1		3
4	165	$\times 2^{x}$	$= 8^{-4}$

Work out the exact value of *x*.

(Total for Question 4 is 3 marks)

5	(a) Write down the value of $36^{\frac{1}{2}}$	<u>Summer 2018 Paper 1 Q9</u>
	(b) Write down the value of 23 ^o	(1)
	(c) Work out the value of $27^{-\frac{2}{3}}$	(1)
		(2)
	(Total for Question	1 3 18 4 IIIarks)

6	(a) Simplify	$m^3 \times m^4$	<u>Summer 2018 Paper 2 Q1</u>
			(1)
	(b) Simplify	$(5np^3)^3$	
		22 9 4	(2)
	(c) Simplify	$\frac{32q^3r}{4q^3r}$	
			(2)
			(Total for Question 6 is 5 marks)
			(Total for Question 6 is 5 marks)
			(Total for Question 6 is 5 marks)
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			(Total for Question 6 is 5 marks)

Patrick has to work out the exact value of $64^{\frac{1}{4}}$	<u>Summer 2019 Paper 3 Q12</u>
Patrick says,	
" $\frac{1}{4}$ of 64 is 16 so $64^{\frac{1}{4}} = 16$ "	
Explain what is wrong with what Patrick says.	
	(Total for Question 7 is 1 mark)

		<u>Summer 2020 Paper 1 Q11</u>
8 (a) Find the value of $\sqrt[4]{81 \times 10^8}$		
(a) This the value of Volville		
		(2)
1		(-)
(b) Find the value of $64^{-\frac{1}{2}}$		
(b) Find the value of $64^{-\frac{1}{2}}$		
		(2)
		(2)
2^n		
(c) Write $\frac{3}{2}$ as a power of 3		
(c) Write $\frac{3^n}{9^{n-1}}$ as a power of 3		
		(2)
	(Total for Question	n 8 is 6 marks)
	•	,

9	(a) Simplify	$\left(\frac{1}{m^2}\right)^0$	<u>Summer 2020 Paper 2 Q10</u>
	(b) Simplify	$\frac{8(x-4)}{(x-4)^2}$	(1)
	(c) Simplify	$(3n^4w^2)^3$	(1)
		(Total for Question	(2) on 9 is 4 marks)
		(Total for Questic	
		(Total for Questic	
		(Total for Questic	

10 (a) Simplify $n^3 \times n^5$	<u>Summer 2020 Paper 3 Q1</u>
c3 d4	(1)
Simplify $\frac{c^3d^4}{c^2d}$	
c u	
5	(2)
Solve $\frac{5x}{2} > 7$	
2	
	(2)
	(Total for Question 10 is 5 marks)

11 (a) Write down the value of 7 ^o	<u>Summer 2021 Paper 1 Q9</u>
(b) Find the value of $3 \times 3^6 \times 3^{-6}$	(1)
(c) Find the value of 2^{-4}	(1)
(d) Find the value of $27^{\frac{1}{3}}$	(1)
	(1)
	(Total for Question 11 is 4 marks)

12 $(ax^6)^{\frac{1}{n}} = 7x^3$	<u>Summer 2021 Paper 3 Q12</u>
Work out the value of a and the	e value of <i>n</i> .
	<i>a</i> =
	$n = \dots$
	(Total for Question 12 is 2 marks)
	(10tal for Question 12 is 2 marks)

13	Work out the value of	$\frac{3^7 \times 3^{-2}}{3^3}$	<u>Autumn 2018 Paper 1 Q1</u>
			(Total for Question 13 is 2 marks)

<u>Autumn 2018 Paper 1 Q14</u>

14 (a) Work out the value of $\left(\frac{16}{81}\right)^{\frac{3}{4}}$

(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 14 is 4 marks)

15 (a) Simplify $(p^2)^5$	<u>Autumn 2019 Paper 1 Q7</u>
(b) Simplify $12x^7y^3 \div 6x^3y$	(1)
	(2)
(Total for Question	15 is 3 marks)

16 Given that $9^{-\frac{1}{2}} = 27^{\frac{1}{4}} + 3^{ext}$ find the exact value of x . $x = \frac{1}{2}$ (Total for Question 16 is 3 marks)		<u>Autumn 2019 Paper 1 Q19</u>
find the exact value of x .	<u> 1</u> <u>1</u>	
find the exact value of x .	16 Given that $9^{-2} = 27^4 \div 3^{x+1}$	
x =	find the exact value of x .	
(Total for Question 16 is 3 marks)		
(Total for Question 16 is 3 marks)		<i>x</i> =

17 Simplify $(2^{-5} \times 2^8)^2$	<u>Autumn 2022 Paper 1 Q3</u>
Give your answer as a power of 2	
	(Total for Question 17 is 2 marks)

18 Work out the value of $\left(\frac{8}{27}\right)^{\frac{4}{3}}$	<u>Autumn 2022 Paper 1 Q17</u>
	(Total for Question 18 is 2 marks)

19 (a) Simplify fully $(3x^5y^6)^4$	<u>Autumn 2022 Paper 3 Q14</u>
(b) Expand and simplify $(x+2)(x-3)(x+4)$	(2)
	(3) (Total for Question 19 is 5 marks)

		<u>Summer 2022 Paper 1 Q18</u>
20 Work out the value of $\frac{\left(\frac{5}{2}\right)^{2}}{2}$	$\frac{3\frac{4}{9}}{9}^{-\frac{1}{2}} \times \left(4\frac{2}{3}\right)$	
You must show all your v		
		(Total for Question 20 is 4 marks)

1 0200	
$\begin{array}{c c} \hline & 10^{360} \\ \hline & & \\ \hline & & \\ \hline & & \\ \end{array}$	0
(a) Express $\sqrt{\frac{10^{360}}{10^{150} \times 10^{90}}}$ as a power of 1	10
	(3)
(1050)	(3)
Liam was asked to express $(12^{50})^2$ as a povential	(3)
	(3)
Liam wrote $(12^{50})^2 = 12^{50^2} = 12^{2500}$	(3)
	(3)
Liam wrote $(12^{50})^2 = 12^{50^2} = 12^{2500}$ Liam's method is wrong.	(3)
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Liam wrote $(12^{50})^2 = 12^{50^2} = 12^{2500}$ Liam's method is wrong.	ver of 12