Answer ALL TWENTY TWO questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

										_	
1 ((a)	Write	down	the	value	of m .	given	that	$3^4 \times$	$3^{5} =$	3^m

 $m = \dots$ (1)

(b) Write down the value of *n*, given that $(5^3)^7 = 5^n$

n =(1)

(c) Find the value of p, given that $\frac{7^8 \times 7^2}{7^p} = 7^6$

$$p = \dots$$
 (2)

(Total for Question 1 is 4 marks)

(a) Expand and simplify $(y+4)(2-y)$		
		(2)
(b) Factorise fully $15b^5c - 35b^3c^9$		()
(b) 1 detorise rang 130 c 330 c		
		(2)
	(Total for Question 2 is 4	marks)

3	(a) Expand and simplify $3(c-7) + 2(3c+4)$		
	(b) Expand and simplify $(x + 7)(x - 2)$	(2)	
	(c) Factorise fully $28y^2 - 21y$	(2)	
	(d) Solve $\frac{7x-2}{4} = 3x + 1$ Show clear algebraic working.	(2)	
		x = (3)	
		(Total for Question 3 is 9 marks)	

4	(a) Factorise fully	$15y^4 + 20uy^3$

(2)

(b) Solve
$$4 - 3x = \frac{5 - 8x}{4}$$

Show clear algebraic working.

x = (3)

(Total for Question 4 is 5 marks)

5	(a) Write down the value of x^0	
		(1)
	Given that $2^{-3} \times 2^9 = 2^n$	
	(b) find the value of <i>n</i>	
		(1)
	Given that $\frac{7^{206} \times 7^m}{7^{214}} = 7^{-3}$	
	(c) find the value of m	
	m =	(2)
	(Total for Question	
	, ,	,

6 (a) Make c the subject of $A = \frac{c}{y} - 5z$	
(b) Write down the value of g^0	(2)
	(1)
(c) Factorise $x^2 - 11x + 24$	
(Total for Question	(2) n 6 is 5 marks)

7	(a) Solve $5(4-x) = 7 - 3x$ Show clear algebraic working.	
	x =	=
	(b) Factorise fully $16m^3g^3 + 24m^2g^5$	(3)
	(c) (i) Factorise $y^2 - 2y - 48$	(2)
		(2)
	(ii) Hence, solve $y^2 - 2y - 48 = 0$	
	(Todal for Or od)	(1)
_	(Total for Question	on / is o marks)

$-4 \leqslant 2y < 6$	
v is an integer.	
(a) Write down all the possible values of y.	
	(2)
(b) Solve the inequality $7t - 3 \le 2t + 31$	
Show your working clearly.	
Show your working clearry.	
	(2)
	(Total for Question 8 is 4 marks)

(a) Simplify $(3x^2y)^0$	
(b) (i) Factorise $x^2 - 5x - 36$	(1)
(ii) Hence solve $x^2 - 5x - 36 = 0$	(2)
(Total for Ouestio	(1) n 9 is 4 marks)
(Total for Questio	ii y is i marks)
	(b) (i) Factorise $x^2 - 5x - 36$

10 (a) Simplify $(2x^3y^5)^4$		
		(2)
(b) (i) Factorise $x^2 + 5x - 36$		
(ii) Hence, solve $x^2 + 5x - 36 = 0$		(2)
		(1)
	(Total for Question	10 is 5 marks)

11 (a) Factorise fully $25a^4c^7d + 45a^9c^3h$		
(b) Solve $(2x+5)^2 = (2x+3)(2x-1)$	(2)	
	$x = \dots (3)$	
	(Total for Question 11 is 5 marks)	_

	_		
12	$\sqrt{2} \times 16 = 2^x$		
	(a) Find the value of x. Show your working clearly.		
		$\chi =$	
			(2)
	$\frac{(11^{-6})^5}{11^4} = 11^n$		
	(b) Find the value of <i>n</i> .		
	Show your working clearly.		
		$n = \dots$	
			(2)
		(Total for Question 12	2 is 4 marks)

			2
13	(a)	Simplify	$(64p^9q^{12})^{\frac{1}{3}}$

(2)

(b) Write as a single fraction $\frac{2}{3x} + \frac{4}{5x} - \frac{9}{10x}$ Give your answer in its simplest form.

(c) Expand and simplify $4x(x - x)$ Show your working clearly.	-5)(2x+3)
	(3) (Total for Question 13 is 7 marks)

14 Expa	and and simplify $4x(3x + y)$ your working clearly.	(1)(2x-3)	
			(Total for Question 14 is 3 marks)

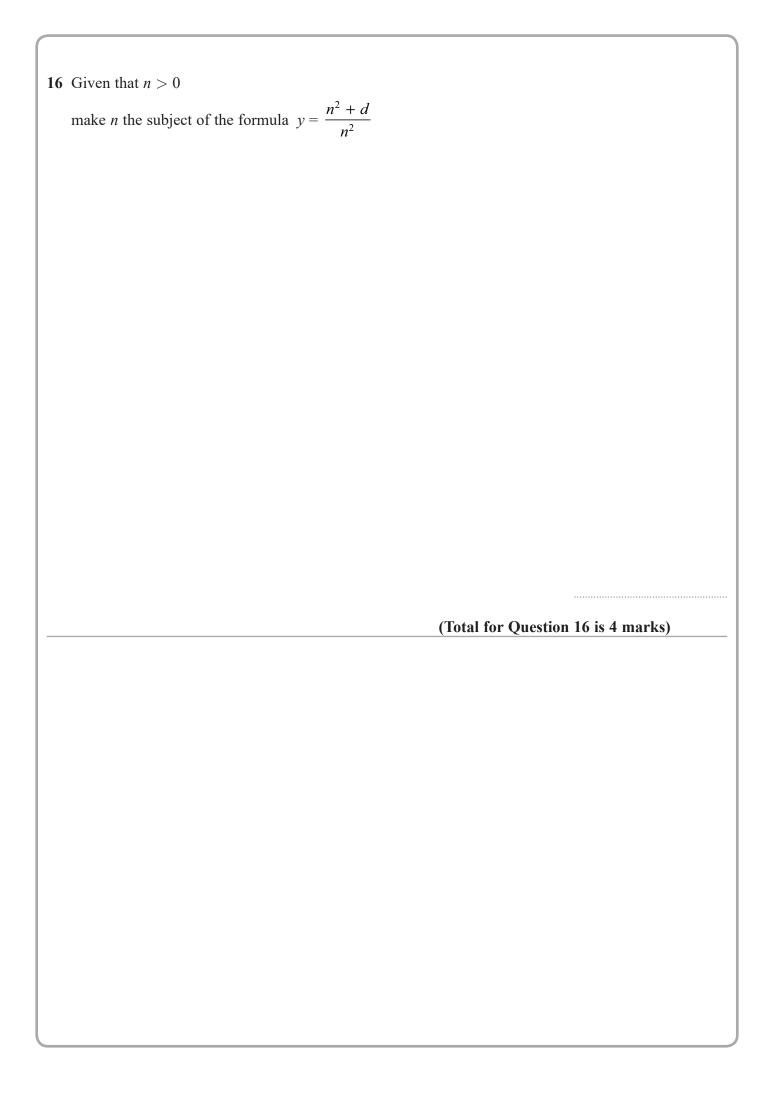
15 (a) Simplify fully $(16x^8y^6)^{\frac{1}{2}}$

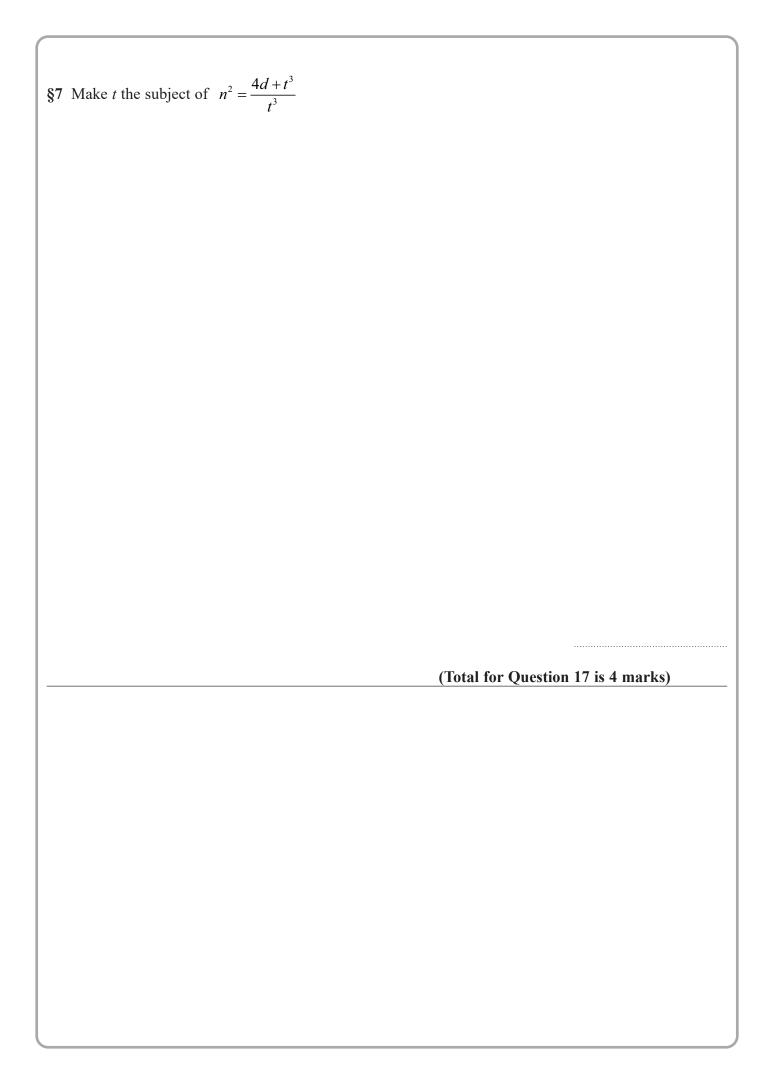
(2)

- (b) Solve $\frac{8-2x}{3} \frac{2x-3}{2} = 4$
 - Show clear algebraic working.

x = (3)

(c) Make f the subject of $m = \sqrt{\frac{1}{3}ef}$





18	$\frac{8}{2^7} = 2^n$ (a) Find the value of n .	
		$n = \dots (2)$
	$(13^{-6})^4 \times 13^5 = 13^k$	
	(b) Find the value of k.	
		$k = \dots$
		(2) (Total for Question 18 is 4 marks)
		(Total for Question To is Thanks)

19 (a) Simplify n^0

(1)

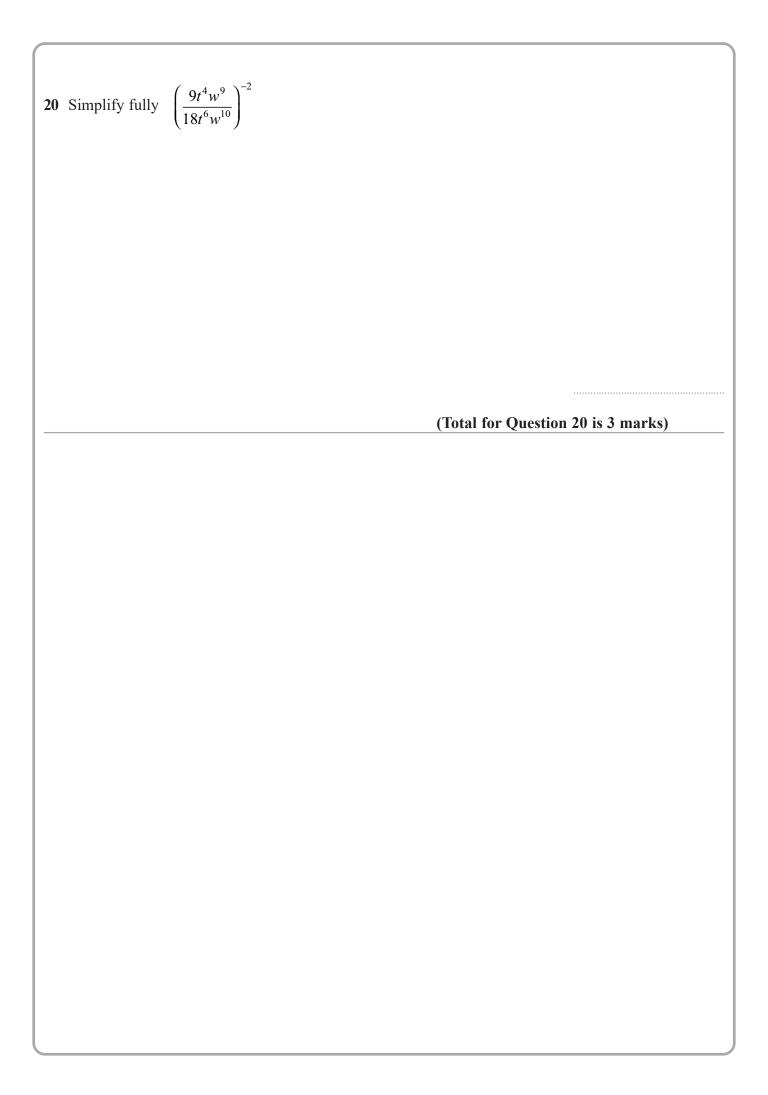
(b) Simplify $(3x^2y^5)^3$

(2)

(c) Factorise fully $2e^2 - 18$

(2)

(d) Make r the subject of $m = \sqrt{\frac{6a + r}{5r}}$



21 Simplify fully $\left(\frac{9x^4}{16y^{10}}\right)^{-\frac{1}{2}}$	
	(Total for Question 21 is 3 marks)

