Question 1:			
1.1.1.	$\frac{5}{0}$	answer	(1)
1.1.2	None	Must write none	(1)
1.1.3	$\pi; \sqrt{18}$	both	(1)
1.2.1.	For which value of s is $\frac{1}{x-3}$ undefined $x = 3$	answer	**(1)**
1.2.2.	$3 < x < 3,5$	answer	**(1)**
			[5]

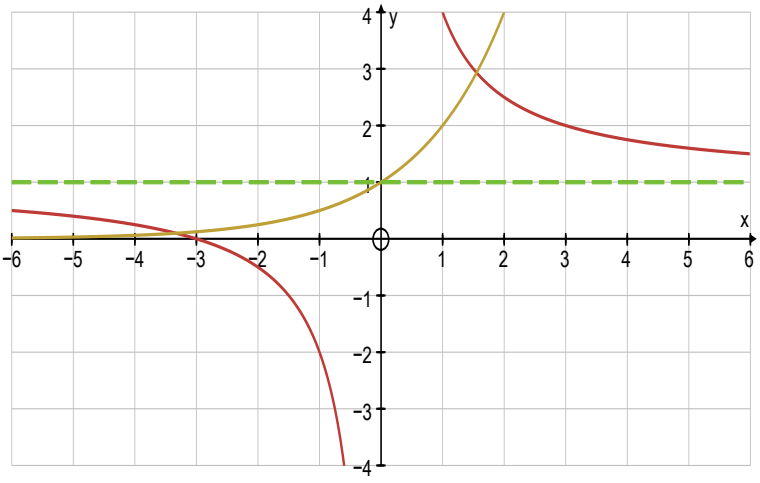
Question 2:			
2.1	$\frac{5^0(p^3)^2}{p^{-2}.p^4}$ $= \frac{(1)(p^6)}{p^{-2+4}}$ $= \frac{p^6}{p^2}$ $= p^4$	✓1 ✓p^6 ✓a	(3)
2.2	$\frac{3}{b-4} + \frac{2}{b+3} - \frac{21}{b^2-b-12}$ $= \frac{3}{b-4} + \frac{2}{b+3} - \frac{21}{(b-4)(b+3)}$ $= \frac{3(b+3)}{(b-4)(b+3)} + \frac{2(b-4)}{(b-4)(b+3)} - \frac{21}{(b-4)(b+3)}$ $= \frac{3b+9+2b-8-21}{(b-4)(b+3)}$ $= \frac{5b-20}{(b-4)(b+3)}$ $= \frac{5(b-4)}{(b-4)(b+3)}$ $= \frac{5}{b+3}$	✓✓ trinomial/ lcd ✓simplify ✓smplify ✓commonfactor * answer	(6)

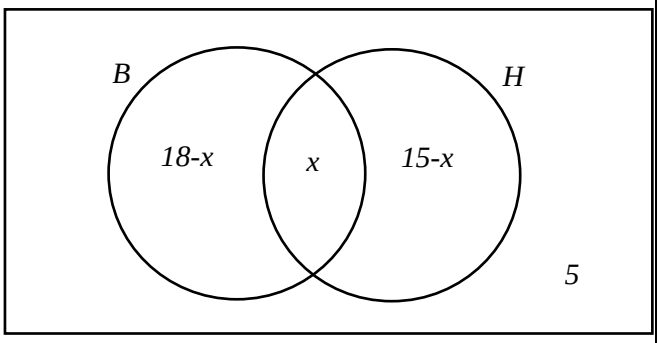
2.3	$= \frac{2(x-1)}{x(x-3)} \times \frac{x^2-9}{x^2+2x-3}$ $= \frac{2(x-1)}{x(x-3)} \times \frac{(x-3)(x+3)}{(x+3)(x-1)}$ $= \frac{2}{x}$	✓cf's ✓ invert ✓✓factorise ✓a	(5)
2.4.	$\frac{2.3^x + 4.3^{x-2}}{3^x - 3^{x+1}}$ $\frac{3^x(2+4.3^{-2})}{3^x(1-3)} = \frac{2+\frac{4}{9}}{-3} = \frac{22}{-3}$	* common factor numerator * bracket numerator * factoring denominator correctly * answer	(4)
2.5.	$p(p-1)$ are consecutive integers.So one is even and one is odd and even numbers are divivisble by 2.	* factorise * * 2 marks for correct explanation	(3)
			[21]

Question 3:			
3.1	$\frac{x-7}{2} = 3(1-2x)$ $x-7 = 2(3-6x)$ $x-7 = 6-12x$ $13x = 13$ $x = 1$	✓multiply by 2 ✓ Remove brackets ✓ans	(3)
3.2	$3^{x+1} = 3^{-2}$ $x+1 = -2$ $x = -3$	✓exponents ✓ eqate ✓ans	(3)
3.3	$(x-7)(3+x) = -16$ $3x - 21 + x^2 - 7x = -16$ $x^2 - 4x - 5 = 0$ $(x-5)(x+1) = 0$ $x = 5 \text{ or } -1$	✓expand ✓standard form ✓factorize ✓a	(4)
3.4	$-11 \leq 3x - 8 \leq 4$ $-3 \leq 3x \leq 12$ $-1 \leq m \leq 4$ -1 4	• adding 8 • dividing by 3 • number line both dots • line	(4)
			[14]

Question 4:			
	$-2x-y=10$ $-2x-10=y$ $3x-4(-2x-10)=-4$ $3x+8x+40=-4$ $11x=-44$ $x=-4$ $y=-2(-4)-10$ $y=-2$	✓x subject of the formula ✓subs ✓x ✓y	(4)
			[4]
Question 5			
5.1.	$x^3(x-y)-27(x-y)$ $(x-y)(x^3-27)$ $(x-y)(x-3)(x^2+3x+9)$	✓switch ✓Common bracket ✓Cube fact Bracket 1 ✓ Cube fact Bracket 2	(4)
5.2.	$3x(x+p)-2m(x+p)$ $(x+p)(3x-2)$	✓$Group$ ✓Common bracket ✓Answer	(3)
			[7]
Question 6			
6.1.	$105\,000=P\left(1+\frac{7.5}{100}\times 10\right)$ $P=\left(\frac{105000}{1+\frac{7,5}{100}\times 10}\right)=R60000$	✓subst ✓dividing ✓Answer	**(3)**
6.2.	$A=P(1+i)^{10}$ $A=100000\left(1+\frac{4.8}{100}\right)^{10}=R159813,27$	✓substitute correct ✓answer	**(2)**
6.3.	Extra amount =159983.27-1000000 =R59813.27	✓answer	**(1)**
			[6]

7.1.1.	$y \leq 6$ *or* $y \in (-\infty; 6]$	• 6 • correct brackets/ inequality	**(2)**
7.1.2	$y = ax^2 + c$ $4 = a(2)^2 + 6$ $a = -\frac{1}{2}$ $y = -\frac{1}{2}x^2 + 6$	✓sub in ✓a ✓equation	**(3)**
7.1.3.	$x > 0;\ x \in R$		**(1)**
7.1.4	$y = \frac{1}{2}x^2 - 6 + 2$ $y = \frac{1}{2}x^2 - 4$	• **two** for reflecting ½ and 6 • -4	**(3)**
7.2.1.	$y = \frac{-3x}{5} + \frac{8}{5}$ *Gradient is perpendicular so* $y = \frac{5}{3}x + c$ $2 = \frac{5}{3}(-3) + c$ $2 + 5 = c$ $c = 7$ New line $y = \frac{5}{3}x + 7$	✓y= ✓gradient ✓Sub in pt ✓c=7 ✓equation	**(5)**
7.2.2.	$3x + 5y = 8$ $\quad x - 2y = 1$ $3(6) + 5y = 8$ $\quad x - 2y = 1$ $5y = 8 - 18$ $\quad 6 - 2y = 1$ $5y = -10$ $\quad 5 = 2y$ $y = -2$ $\quad y = \frac{5}{2}$ $BD = 2 + \frac{5}{2} = 4.50$	✓substituting 6 Y=-2 Y=5/2 ✓BD	(4)
			[18]

QUESTION 8			
8.1.1	$x = 0$; y = 1	• x • y	(2)
8.1.2.	$y = 0$	• correct answer	(2)
8.1.3	Graph		
	$f(x) = \frac{3}{x} + 1 \qquad g(x) = 2^x$ 	✓shape ✓asymptote ✓asymptote equation ✓co-ordinates of x-int (no marks for calculations; can award two marks if just -3 is shown) ✓quadrants 1 and 3 ✓extra coordinate	(6)
8.2.1.	$f(3): -3(3) - 2 = -11$ $g(x): -3 + 2 = -1$ $-11 - 1 = -12$	✓sub into f ✓ -11 ✓ -1 ✓ Answer	(4)
8.2.2	$2(-(x+1)) + 2$ $= 2(-x - 1 + 2)$ $= -2x + 2$	• substituting (x+1) • distribute • answer	(3)
			[17]

Question 9:			
9.1		• 5 • *x* • *Both the 18 – x and the 15 - x*	(3)
9.1.2	$18 - x + x + 15 - x + 5 = 30$ $38 - x = 30$ $x = 8$	✓setting up the equation ✓a	(2)
9.1.3 a)	$P(H\ and\ B) = \frac{8}{30}$ $= \frac{4}{15}\ (or\ 0{,}27\ or\ 26{,}67\%)$	✓numerator ✓denominator	(2)
9.1.3 b)	$P(B') = \frac{30 - 18}{30}$ $= \frac{12}{30}$ $= \frac{2}{5}\ (or\ 0{,}4\ or\ 40\%)$	✓12 ✓if fraction correct	(2)
9.1.4	$P(B \cup H) = \frac{(18 - 8) + 8 + (15 - 8)}{30}$ $= \frac{25}{30}$ $= \frac{5}{6}$	✓answer	(1)
			[10]