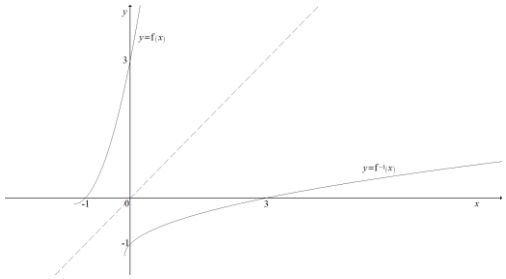
Question	Answer	Marks	Guidance
1(b)	$1 \leqslant x \leqslant 2.5$	**B1**	Mark final answer
	$x \geqslant 5$	**B1**	Mark final answer
2(a)	$\left(\text{p}(-2) =\right)\ -16+4a-26+b=0$	**B1**	
	$\left(\text{p}(-1) =\right)\ -2+a-13+b=6$	**B1**	
	$a=7,\ b=14$	**2**	**M1** to solve *their* equations to obtain at least one value, must be using $\text{p}(-2)$ or $\text{p}(-1)$
2(b)	$(x+2)\left(2x^2+3x+7\right)=0$ soi	**2**	**M1** for attempt to factorise or use of long division on *their* $\text{p}(x)$
	Correct use of discriminant on *their* quadratic factor or correct attempt to solve *their* quadratic factor equated to zero with valid conclusion	**B1**	**FT** on *their* quadratic factor. Quadratic factor must have a negative discriminant and have a correct value if evaluated
3(a)	$a+ar=9$ or $\dfrac{a\left(1-r^2\right)}{1-r}=9$ or $\dfrac{a\left(r^2-1\right)}{r-1}=9$	**B1**	
	$\dfrac{a}{1-r}=25$	**B1**	
	$r^2=\dfrac{16}{25}$	**B1**	**Dep B** mark on both previous **B** marks
	$r=\pm\dfrac{4}{5}$ or ± 0.8	**B1**	**Dep B1** mark on all previous **B** marks
3(b)	$a=5,\ 45$	**2**	**B1** for each
4(a)	$2\left(x+\dfrac{5}{4}\right)^2-\dfrac{1}{8}$	**2**	**B1** for $2\left(x+\dfrac{5}{4}\right)^2$ **B1** for $-\dfrac{1}{8}$
4(b)	$\left(-\dfrac{5}{4},\ -\dfrac{1}{8}\right)$	**2**	**B1FT** on *their* – *a* **B1FT** on *their b* **B0** if calculus used as question says 'Hence'
4(c)(i)	$-\dfrac{5}{4}$ or $p=-\dfrac{5}{4}$ or $x \geqslant -\dfrac{5}{4}$	**B1**	**FT** on *their* – *a* from part **(a)**. Allow if from calculus

Question	Answer	Marks	Guidance
4(c)(ii)		**5**	**B1** for $y = \mathrm{f}(x)$ drawn as a one-one function in the first, second and third quadrants or first and second quadrants. Must have correct curvature **Dep B1** for $y = \mathrm{f}^{-1}(x)$ as a reflection of *their* $y = \mathrm{f}(x)$ in the line $y = x$. Maybe implied by intercepts, but must have the correct curvature **B1** for $y = \mathrm{f}(x)$ clearly passing through $x = -1$ correctly soi. Allow if domain is unrestricted but must have correct quadratic shape or curvature **B1** for $y = \mathrm{f}(x)$ passing through $y = 3$ only on the y-axis soi. Allow if domain is unrestricted but must have correct quadratic shape or curvature **B1** for – 1 and 3 marked correctly for $y = \mathrm{f}^{-1}(x)$ allow for unrestricted range. Must have correct curvature.
5(a)	$\lg\left(\frac{a^5}{1000b^4}\right)$ or $\lg\left(\frac{a^5}{10^3b^4}\right)$ or $\lg\left(10^{-3}a^5b^{-4}\right)$ or $\lg\left(0.001a^5b^{-4}\right)$ or $\lg\left(\frac{a^5b^{-4}}{10^3}\right)$ or equivalent correct single logarithm to base 10.	**3**	**B2** for $\lg\left(a^5 \div b^4 \div 1000\right)$ **or B2** for $\lg\left(\frac{a^5}{b^4} \div 1000\right)$ **B1** for $3 = \lg 1000$ or $\lg 10^3$ soi **B1** for use of the power rule at least once