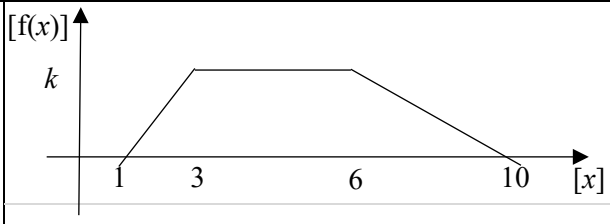
Question Number	Scheme	Marks
4 (a)		B1 B1
		(2)
(b)	$\frac{1}{2}(3+9)\times k=1$ or $\frac{1}{2}(3-1)k+(6-3)k+\frac{1}{2}(10-6)k=1$ or $\frac{1}{2}k\left[\frac{x^2}{2}-x\right]_1^3+k[x]_3^6+\frac{1}{4}k\left[10x-\frac{x^2}{2}\right]_6^{10}=1$	M1
	$k=\frac{1}{6}$ *	A1* cso
		(2)
(c)	$\int_1^x \frac{1}{12}(x-1)\,dx$ or $\int \frac{1}{12}(x-1)\,dx$ and using F(1) = 0	M1
	$\int_3^x \frac{1}{6}dx+"F(3)"$ or $\int \frac{1}{6}dx$ and using "F(3) = $\frac{1}{6}$"	M1
	$\int_6^x\left(\frac{5}{12}-\frac{1}{24}x\right)dx+"F(6)"$ or $\int\left(\frac{5}{12}-\frac{1}{24}x\right)dx$ and using either "F(6) = $\frac{2}{3}$" or F(10) = 1	M1
	$F(x)=\begin{cases}0 & x<1\\ \frac{1}{24}(x^2-2x+1) & 1\leqslant x\leqslant 3\\ \frac{1}{6}(x-2) & 3<x\leqslant 6\\ \frac{1}{48}(20x-x^2-52) \text{ or } 1-\frac{(10-x)^2}{48} & 6<x\leqslant 10\\ 1 & x>10\end{cases}$	A1oe A1oe A1 oe B1
		(7)
(d)	$P(X>E(X))=1-F\left(\frac{61}{12}\right)=1-0.51388...=0.4861...$ awrt 0.486	M1 A1 (2)
(e)	Since (d) < 0.5 [the mean is greater than the median] therefore positive (skew) or follow through their sketch in part (a)	M1 A1ft
		(2)

	Notes		Total 15
4(a)	**B1**	Correct shape. Must start and end on the x axis	
	B1	Fully correct including 1, 3, 6, 10 and k. Allow $^1/_6$ for k Ignore labels for x and f(x) and any extras e.g. $^k/_2$	
(b)	**M1**	Setting up the area of the trapezium = 1 or 2 triangles + a rectangle = 1 or a fully correct integration, including limits =1	
	A1* cso	Answer is given. Correct solution only with no incorrect working.	

(c)	**M1**	For a correct method to find the 2nd line Allow in terms of k

	M1	For a correct method to find the 3rd line, ft their F(3). If using + c method then ft their F(3) = $\frac{1}{6}$ Allow in terms of k
	M1	For a correct method to find the 4th line, ft their F(6). If using + c method then ft their F(6) = $\frac{2}{3}$ Allow in terms of k
	A1	2nd line correct including inequality. Allow < instead of $\leqslant$
	A1	3rd line correct including inequality. Allow < instead of $\leqslant$
	A1	4th line correct including inequality. Allow < instead of $\leqslant$
	B1	1st and 5th line correct. Allow "otherwise" for the range on the 1st or 5th line but not both. All 5 lines must be in terms of the same letter.
(d)	**M1**	For use of $1-\mathrm{F}\left(\frac{61}{12}\right)$ using the their line of F(x) for $3 < x \leqslant 6$. May use integration/area methods
	A1	awrt 0.486 Allow $^{35}/_{72}$
(e)	**M1**	For correctly comparing part (d) with 0.5 (may be implied by a correct comparison of mean and median (5)) do not allow mean is greater than the median on its own
	A1ft	For positive skew or ft their answer to part (d) Accept "no (or negligible) skew" following a reason that "mean $\approx$ median" Allow argument based on sketch in part (a)