Question	Scheme	Mark	AO
3(a)	[From 3~4 bar and freq in table deduce] fd scale of 1cm = 5	M1	2.2a
	2~3 has freq = **25** **and** 4~6 has freq = 112 – (64+13+3 + "25") = **7**	A1	1.1b
		(2)	
(b)	For a bar between 4~6 of height $\frac{"7"}{2} = 3.5$ small squares <u>or</u>	M1	2.2a
	For a bar between 6~8 of height 1.5 small squares		
	For a fully correct histogram with all 3 bars plotted correctly	A1ft	1.1b
		(2)	
(c)	Require $\int_{(1)}^{(8)} \frac{k}{x^2} \, dx = 112$	M1	3.4
	$= \left[\frac{-k}{x}\right]_1^8 = \left(-\frac{k}{8}\right) - \left(-\frac{k}{1}\right)[=112]$	M1	1.1b
	i.e. $\left[\frac{7}{8}k = 112 \Rightarrow\right] \quad k = \underline{\textbf{128}}$	A1	1.1b
		(3)	
		(7 marks)	
	Notes		
(a)	M1 for deducing a correct fd scale (seen on graph or in text) may be implied 25 <u>or</u> 7		
	if 25 <u>or</u> 7 found, then ignore their fd scale		
	A1 for both 25 **and** 7		
(b)	Ignore their fd scale in part (b)		
	M1 for a correct bar over 4~6 follow through their "7" from their table		
	<u>or</u> for a correct bar over 6~8		
	A1ft for a fully correct histogram (all 3 bars correct height and correct width)		
	allow ft on their 4~6 bar		
(c)	1st M1 for correct integral expression = 112 (condone missing dx and ignore limits)		
	or attempt to integrate ($x^{-2} \rightarrow x^{-1}$) and set area = 112 (ignore limits)		
	2nd M1 for correct integration and some use of limits of 1 and 8 (condone missing 112)		
	$\frac{7}{8}k = 112$ implies M1M1		
	A1 for 128		