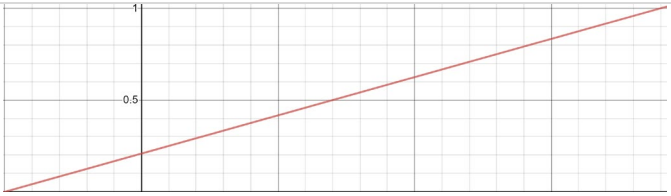
Question	Scheme	Marks
3. (a)	$\frac{19}{24}$	B1
		(1)
(b)	$P(\lvert R\rvert > 3.5) = \frac{-3.5-(-5)}{19-(-5)} + \frac{19-3.5}{19-(-5)}, = \frac{17}{24}$	M1, A1
		(2)
(c)		M1 A1
		(2)
(d)(i)	$P(R_1 > 10) = \frac{19-10}{19-(-5)}\left[= \frac{9}{24} = 0.375\right]$	M1
	$[P(R > 10)]^3 = \left(\frac{9}{24}\right)^3 = \frac{27}{512}$	M1 A1
		(3)
(ii)	$1 - [P(R < 10)]^3 = \frac{387}{512}$	M1 A1
		(2)
	Notes	**[10 marks]**
(a)	B1 allow awrt 0.792	
(b)	M1 sum of two regions from uniform distribution or $1-\frac{3.5-(-3.5)}{19-(-5)}\left[=1-\frac{7}{24}\right]$ oe You may ft their denominator from (a)	
	A1 allow awrt 0.708	
	SC M1A0 for $P(-3.5 < R < 3.5) = \frac{7}{24}$ (awrt 0.292) **or** for finding $P(R > 3.5) = \frac{31}{48}$(awrt 0.646) and $P(R < -3.5) = \frac{1}{16}$(0.0625)	
(c)	M1 straight line with increasing gradient. Allow a horizontal line to the right of 19 and/or a horizontal line to the left of – 5	
	A1 starting at (–5, 0) and finishing at (19, 1) Need to be clear labels for −5, 19 and 1. 0 may be labelled or implied by the x- axis	
(d) (i)	1st M1 for $P(R > 10)$ eg $1-\frac{10-(-5)}{19-(-5)}$ no need to simplify. Implied by 0.375 or $\frac{27}{512}$ You may use their denominator from (a)	
	2nd M1 ["their $P(R > 10)$"]^3 They may use their denominator from (a) otherwise ft their $P(R > 10)$ only if it is clearly labelled.	
	A1 allow awrt 0.0527	
(ii)	M1 Use of $1 - p^3$ $0 < p < 1$ (none are greater than 10cm from origin) or $3p^2(1-p) + 3p(1-p)^2 + (1-p)$ $0 < p < 1$ working needs to be shown	
	A1 allow awrt 0.756	
	SC M1A0 for finding the P (exactly 1 is > 10cm) = $\frac{225}{512}$ = (0.439…)	