

Question	Scheme	Marks	AOs
3(a)(i)	$133 = 2311 - \frac{(\sum x)^2}{8}$	M1	3.1a
	$\sum x = \sqrt{8 \times (2311 - 133)}$ (=132)	M1	2.1
	$\bar{x} = \frac{132}{8} = 16.5^*$	A1*	1.1b
		(3)	
	$\sqrt{\frac{S_{xx}}{n}} = \sqrt{\frac{133}{8}} = \sqrt{16.625}$ $= 4.07737...$ awrt 4.08	M1 A1	1.1b 1.1b
		(2)	
(b)(i)	$10.6 = \frac{\bar{v}}{100} - 20$	M1	2.1
	$\bar{v} = 100 \times (10.6 + 20) = 3060 \text{ (dam)}^*$	A1*	1.1b
		(2)	
	$\sigma_v = 100 \times \sigma_y = 1260 \text{ (dam)}$	B1	3.4
		(1)	
(c)(i)	Decametres or dam (accept Dm)	B1	1.2
(ii)	Beijing, Jacksonville or Perth and Daily Mean Visibility is not available for overseas locations	B1	2.4
		(2)	

(10 marks)

Notes:
(a)(i) M1: Use of $S_{xx} = \sum x^2 - \frac{(\sum x)^2}{n}$ M1: Solving to find $\sum x$ A1*: $\bar{x} = 16.5$ cso (ii) M1: Use of $\sqrt{\frac{S_{xx}}{n}}$ (may be implied by sight of 16.625) A1: awrt 4.08

(b)(i)

M1: Use of $\bar{y} = \frac{\bar{v}}{100} - 20$

A1: cso*

(ii)

B1: 1260 (dam) (Note may see the equivalent 12 600 m)

(c)(i)

B1: knowledge and understanding of the units used in lds

(ii)

B1: one of the locations and awareness that the data is not available