

Qu 3	Scheme	Marks	AO
(a)	Hectopascal <u>or</u> hPa	B1	1.2
(b)	$\bar{x} = \bar{y} + 1010$ <u>or</u> $\frac{214}{30} + 1010$ $= 1017.1333\dots$ awrt <u>1017</u>	M1 A1 (2)	1.1b 1.1b
(c)	$\sigma_x = \sigma_y$ (or statement that standard deviation is not affected by this type of coding) $[\sigma_y =] \sqrt{\frac{5912}{30} - ("7.13[33\dots]")^2}$ <u>or</u> $\sqrt{146.1822\dots}$ $= 12.0905\dots$ awrt <u>12.1</u>	M1 M1 A1 (3)	3.1b 1.1b 1.1b
(d)	High pressure (since approx. mean + sd) so clockwise Locations are (from North to South): Leuchars, Heathrow, Hurn Wind direction is direction wind blows <u>from</u> So: Heathrow (NE) Hurn (E) Leuchars (W)	B1 B1 (2)	2.4 2.2a
(8 marks)			
Notes			
FYI	1 hPa = 100 Pa; 10hPa = 1 kPa; 1Pa = 1 Nm ⁻²		
(a)	B1 for “hectopascal” <u>or</u> hPa (condone pascals, allow millibars <u>or</u> mb) o.e. Do NOT allow kPa <u>or</u> kilopascals <u>or</u> Pa on its own		
(b)	M1 for a strategy to find \bar{x} Allow an attempt to find $\sum x$ that gets as far as $\sum x = \sum y + 30 \times 1010 [= 30\,514]$ A1 for awrt 1017 (accept 1020) [Ignore incorrect units]		
(c)	1 st M1 for an overall strategy using the fact $\sigma_x = \sigma_y$ (can be implied by correct <u>final</u> ans) <u>or</u> for $\sum x = 30\,514$ and $\sum x^2 = 31\,041\,192$ (both seen and correct) 2 nd M1 for a correct expression (with $\sqrt{}$) (ft their \bar{y} to 3sf) allow awrt 146 for 146.1822.. <u>or</u> for correct expression in x can ft their $\sum x > 30\,000$ or their answer to (b) A1 (dep on 2 nd M1) for awrt 12.1 [Ignore incorrect units]		
Final answer	Final ans of awrt 12.1 scores 3/3 but if they then adjust for x e.g. add 1010 (M0M1A1)		
(d)	1 st B1 for at least one of these reasons (these 2 lines) clearly stated (may see diagram) Need “high pressure” and “clockwise” to score on 1 st line Contradictory statements B0 e.g. correct N~S list but say “anticlockwise” 2 nd B1 (indep of 1 st B1) for deducing the 3 correct directions either in the table or stated as above If the answers in table and text are different we take the table (as question says)		