

Homework 6 – Solutions

5)	(a)	$R = (1 + 0.019)^{12} - 1$ $= 1.2534... - 1$ $= 0.2534$ $= 25.3\%$	M1 B1 A1	3	Implied by 1.2534 $R = (1 + 1.9\%)^{12} - 1$ is not accepted unless 1.2534 etc B1 for 1.2534 1.9 × 12 no marks 0.2534 × 12 M1 B1 SC2 25%	(3)	
6)	(a)(i)	Mode = <u>26</u>	B1	1	CAO		
	Notes	1 "Mode is 26 (visitors) because largest frequency/number of days is 13" (OE) ⇒ B1 2 "Modes are 13 and 26" (OE) ⇒ B0					
	(ii)	$x \leq 20$ 21 22 23 24 25 26 27 28 29 ≥ 30 F: 1 3 6 12 20 30 43 50 52 53 55 Median = <u>25</u> IQR = 26 - 24 = <u>2</u>	B1 B1	2	CAO CAO		
	Notes	1 Median is at CF = 27 to 28, UQ is at CF = 41 to 42 and LQ is at CF = 13 to 14 2 An answer of 25 or/and 2 with clearly shown incorrect method(s) ⇒ B1 B0 or B0 B1 or B0 B0					
	(b)	Mean Range or Standard deviation or Variance	B1 B1	2	CAO; accept nothing else CAO; accept naming of only one of these three measures; nothing else		
	Notes	1 Unless clearly identified as to which is the 'measure of average' and which is the 'measure of spread', assume order is as requested in question (ie average then spread) so (eg simply 'range and mean' ⇒ B0 B0 and so Bdep0 Bdep0 in (c) but the possibility, using SC below, of M1 M1 in (c)) 2 Accept "arithmetic mean" 3 Do not accept abbreviations such as "Sd/Var" or symbols such as " $\bar{x} / \mu / w / s / \sigma / s^2 / \sigma^2$ "					
	(c)	Mean = <u>25.6</u> Mean = <u>25 to 26</u> Range = <u>45</u> or Sd(n) = <u>5.26</u> or Sd(n-1) = <u>5.31</u> or Var(n) = <u>27.7</u> or Var(n-1) = <u>28.2</u>	Bdep2 (B1dep) ↑ Bdep1 ↓	3	CAO $\sum fx = 1408$ Dependent on 1 st B1 in (b) AWWF CAO Dependent on 2 nd B1 in (b) AWRT (5.26256 or 5.31106) $\sum fx^2 = 37568$ AWRT (27.6945 or 28.2074)	(7)	

7)	(a)	$C = \frac{1000}{1.215} + \frac{1000}{1.215^2}$ $= 823.045 + 677.404$ $= 1500.45$	M1 A1 A1	Attempt at RHS involving two terms Must show some evidence of working
	(b)	$1500 = \frac{A}{1.2} + \frac{A}{1.2^2}$ $1500 \times 1.2^2 = 1.2A + A$ $2160 = 2.2A$ $A = 981.82$	M1 M1 A1	Accept £982
	TOTAL		6	(6)

TOTAL: 38