

Homework 11 – Solutions

1)	$(6 + 4) \div 1.31$ or $(\pounds)1.14(50\dots)$	M1	
	$(\pounds)2.50 - \text{Their } (\pounds)1.14(50\dots)$ or $(\pounds)1.35(49\dots)$	M1	Must be consistent units
	Their $(\pounds)1.35(49\dots) \times 4$ or $(\pounds)5.4(\dots)$	M1	
	$(\pounds)5.4(\dots)$ and Yes	A1	

2)	Stem 10, 11, 12, 13	B1	
	Leaves fully correct 5 6 7 8 5 5 6 7 9 1 3 5 8 3 4 6	B2ft	B1ft for 2 or 3 correct rows or B1ft for correct unordered leaves
	Additional guidance		
	Accept Stem 13, 12, 11, 10		
	ft their stem if their stem is not in the correct order		

	8.5 th or 8 th and 9 th identified or 117 and 119 identified or 7 and 9 identified	M1	
	118	A1	
	Additional guidance		
	8 th and 9 th values may be identified on the diagram or in an ordered list		

	No and $\frac{3}{16}$ and $\frac{4}{16}$ or No and 0.18(75) and 0.25 or No and 18(.75)(%) and 25(%)	B2	B1 for $\frac{3}{16}$ or 0.18(75) or 18(.75)(%) or $(\frac{1}{4} =) \frac{4}{16}$
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3)	i(a)	The values are 100	B1	oe
	i(b)	No change 2007 – 2009	B1	oe
	i(c)	Clothing	B1	
	i(d)	Most important item of expenditure	B1	
	e(i)	$108/105 \times 630$ 648	M1 A1	
	e(ii)	$630/105 \times 100$ or Their $648/108 \times 100$ Their 648 – their 600 Increase 48	M1 M1 dep A1ft	

4)	Solution	Mark	Total	Comment
	(a) Taxable income is $\pounds 122,000 - \pounds 12,500 = \pounds 109,500$	M1 A1	2	
	(b) 20% tax is $\pounds 37,500 \times 0.2 = \pounds 7,500$ 40% tax is charged on $\pounds 109,500 - \pounds 37,500 = \pounds 72,000$ Tax at 40% is $\pounds 72,000 \times 0.4 = \pounds 28,800$ Annual tax paid is $\pounds 36,300$	M1, A1 M1 A1 A1		
	Total		7	

4

9

7

5)	10(a)(i)	2	B1	
	10(a)(ii)	8	B1	
	10(b)(i)	315/90	M1	
		3.5	A1	
	10(b)(ii)	$1483/90 - \text{their}(3.5)^2$	M1	
		$\sqrt{4.2278}$	M1dep	
		2.056	A1	
	10(c)	Ticks yes: takes in to account all the data	E1	Accept no: if references skewness
	10(d)	Mode : stays the same	E1	(11)
		Mean : increases	E1	
		Range : decreases	E1	

7)

68 (inches)	B1	
[172, 174] (cm)	B1ft	ft their 68
$125 \times \tan 40$ or [104, 105] or $1.25 \times \tan 40$ or [1.04, 1.05]	M1	
their [104, 105] + 80 or their [1.04, 1.05] + 0.8	M1	units must be consistent
yes and [172, 174] and [184, 185] or yes and [1.72, 1.74] and [1.84, 1.85]	A1ft	ft their 68

5

6) (a) Assumption: average person spends between 2 and 5 hours per day on their phone (1 mark)
Life expectancy 70 to 90 years (1 mark)

$$[2 \text{ to } 5] \times 365 \times [70 \text{ to } 90] = [51,100 \text{ to } 164,250] \text{ hours on smartphone (2 marks)}$$

$$[51,100 \text{ to } 164,250] \div 24 = [2,129 \text{ to } 6,844] \text{ days of smartphone usage in a lifetime (1 mark)}$$

(b) Comment such as: if I assumed a person spent more time on their phone each day the days of usage in a life time would increase/if I assumed life expectancy was lower the days of usage would decrease (or vice versa) (1 mark)

6

TOTAL: 49