Highfield Functional Skills Qualification in Mathematics at Level 2 PAPERCODE: FSQC211P

Question	Total marks	Subject content	Process	Marker annotation	Accepted answer AFT = allow follow through CAO = correct answer only
1	1	5	Calculate 13% percentage of the amount given	1CA	CAO (£)33.15
2	2	5	Method to calculate percent	1a	CAO 198 ÷ 230
		5	Correct answer	1b	CAO 86.08695(%) accept correct rounding e.g. 86.09(%)
3	1	2	Use a suitable strategy to check the answer to Q2	1CA	CAO Suitable checking strategy used and accurately applied E.g. 230 ÷ 100 x 86.09 = 198(.007)
4	2	3	Uses the correct method to calculate	1a	CAO 0.5 x 25 + 5
		3	Finds the correct answer	1b	CAO 17.5
5	2			2CA	CAO 11 (lb)
		If the answer is incorrect revert to:			
		14	Convert 5000 grams to kilograms	1a	CAO 5000 ÷ 1000 = 5
		14	Convert kilograms to pounds	1b	AFT (5) x 2.2 = (11)
6	1	2	Use a suitable strategy to check the answer to Q5	1a	CAO Suitable checking strategy used and accurately applied E.g. 11 ÷ 2.2 = 5 5 x 1000 = 5000

7	**1**	**12**	Follow the order of precedence to find value of x when x = 15 + $84^2 \div 3$	**1CA**	CAO 2367	
8	**2**			**2CA**	CAO $3\frac{5}{16}$	
		If the answer is incorrect revert to:				**Alternative method:**
		7	Convert the mixed fraction into an improper fraction	**1a**	CAO $\frac{21}{8}$ or $\frac{42}{16}$	CAO 5 x 2 = 10 8 x 2 = 16
		7	Add the improper fractions	**1b**	AFT $(\frac{42}{16}) + \frac{11}{16} = (3\frac{5}{16})$	AFT $\frac{11}{16} + \frac{10}{16} = 1\frac{5}{16}$ (+2)
9	**2**			**2CA**	CAO $\frac{3}{8}$	
		If the answer is incorrect revert to:				
		8	Express 36 out of 96 as a fraction	**1a**	CAO $\frac{36}{96}$	
		8	Simplify their identified fraction	**1b**	AFT Correct simplification of their fraction E.g. $\div 6 = \frac{6}{16}$ $\div 2 = \frac{3}{8}$	

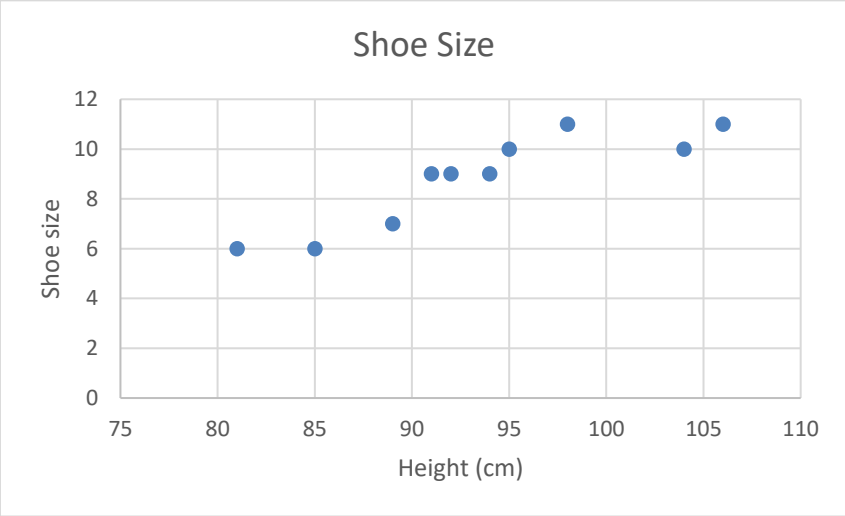
<table>
<tr><td rowspan="6">10</td><td rowspan="6">5</td><td></td><td></td><td>5CA</td><td>CAO
No and 40-44</td></tr>
<tr><td colspan="5">If the answer is incorrect revert to:</td></tr>
<tr><td>24</td><td>Find the mid-point (m) of each interval</td><td>1a</td><td>CAO<table><tr><td>Diameter</td><td>35-39</td><td>40-44</td><td>45-49</td><td>50-54</td><td>55-59</td></tr><tr><td>Mid-point (m)</td><td>37</td><td>42</td><td>47</td><td>52</td><td>57</td></tr></table></td></tr>
<tr><td>24</td><td>Multiply (m) with the frequency (f) for each grouped size of pipe</td><td>1b</td><td>AFT<table><tr><td>Diameter</td><td>35-39</td><td>40-44</td><td>45-49</td><td>50-54</td><td>55-59</td></tr><tr><td>Frequency (f)</td><td>8</td><td>10</td><td>13</td><td>3</td><td>1</td></tr><tr><td>Mid-point (m)</td><td>37</td><td>42</td><td>47</td><td>52</td><td>57</td></tr><tr><td>(m) x (f)</td><td>296</td><td>420</td><td>611</td><td>156</td><td>57</td></tr></table></td></tr>
<tr><td>24</td><td>Add the totals from mark 1b</td><td>1c</td><td>AFT
(296) + (420) + (611) + (156) + (57) = (1540) o/e</td></tr>
<tr><td>24</td><td>Method for dividing their total from mark 1c by the total sum of the frequency</td><td>1d</td><td>AFT
(1540) ÷ (8 + 10 + 13 + 3+ 1) = (44) o/e</td></tr>
<tr><td>2</td><td>Correct decision with accurate figure</td><td>1e</td><td>No and e.g. "mean is in group 40-44”</td></tr>
</table>

11	**6**			**6CA**	CAO (£)2016	
		If the answer is incorrect revert to:				**Alternative method:**
		2	Calculate the total hours over 42 days OR Calculate the daily wage total over 42 days	**1a**	CAO (hours) (6 x 8) x 42 = 2016 OR CAO (daily wage) (6 x 8) x 12 = (576)	Calculates additional 'days' of work 42 - 35 = 7
		2	Calculate the correct total wages for 42 days	**1b**	AFT (2016) x 12 = (£24,192) OR (576) x 42 = (£24,192)	Adds this to original number of hours worked per day 8 OR 7 x 8 = 56
		2	Calculate the number of hours available in 35 days	**1c**	CAO (35 x 8) x 6 = 1680	Calculates additional cost per hour £18 - £12 = £6
		1	Calculate number of overtime hours required	**1d**	AFT (2016) – (1680) = 336	Uses correct number of builders 6
		2	Work out the correct total wages for 35 days	**1e**	AFT (1680) x 12 = 20,160 336 x 18 = 6,048 20,160 + 6048 = 26, 208	Uses correct method to calculate total 7 x 8 x 6 x £6 OR 56 x 6 x £6
		1	Work out the difference in cost between 35 days and 42 days	**1f**	AFT (26, 208) – (24, 192) = (£)2016 *When '2016' is seen, ensure this is not the figure of total hours in 42 days and the above calculation has been completed*	

12	**5**			**5CA**	CAO Deluxe	
		If the answer is incorrect revert to:				**Alternative method:**
		18	Interpret scale to work out correct dimensions and volume of living room (as a rectangle)	**1a**	CAO 5.5m x 4m x 2.2m = 48.4m^3	
		17	Uses appropriate method to 'remove' triangle from corner	**1b**	CAO 1m x 1m x 2.2m = 2.2m^3 ÷ 2 = 1.1 m^3	
		17	Finds correct volume of living room	**1c**	AFT 48.4 - 1.1 = 47.3m^3	
		14	Converts heater capacities from cubic feet to cubic meters	**1d**	CAO 1765 ÷ 35.3 = 50 2400 ÷ 35.3 = 67.99 1050 ÷ 35.3 = 29.75 1750 ÷ 35.3 = 49.58 880 ÷ 35.3 = 24.92 1590 ÷ 35.3 = 45.04	CAO Converts volume of room into cubic feet 47.3 x 35.3 = 1669.69
		14	Recommend a suitable heater for the volume of the room	**1e**	CAO Deluxe	

13	**6**			**6CA**	CAO (£)265,250
		25	Finds mean of 2005 prices	**1a**	CAO (54050 + 72000 + 68000 + 49000 + 56500 + 49900 + 73250 + 63500) ÷ 8 OR (486200) ÷ 8 = (£)60, 775
		25	Finds mean of 2015 prices	**1b**	CAO 132000 + 105500 + 98500 + 143000 + 110250 + 172600 = 761850 ÷ 6 = (£)126,975
		13	Method for % increase from 2005 to 2015	**1c**	AFT (126,975-60,775) ÷ (60, 775)
		13	Finds correct %	**1d**	AFT = 1.089263677498972
		6	Method for % increase to find their 2025 price	**1e**	AFT ((126,975) x (1. 089263677498972)) + (126, 975)
		6	Finds correct answer	**1f**	= (£)265,284 OR Rounds to (£)265,300 *Allow any figure within the range of 265,284 to 265300*
14a	**6**	**18**	Method for calculating length and width for 54m^2 using space available	**1a**	CAO 54 ÷ 10 = 5.4 or 54 ÷ 9 = 6 or 54 ÷ 8 = 6.75 or 54 ÷ 7 = 7.714 or 54 ÷ 6 = 9 or
		18	Create outline of the play area on the grid with correct scale	**1b**	CAO Draws plan on grid that represents 54m^2
14b		**18**	Draw see-saw to scale (measuring 2.4m x 0.5m)	**1c**	CAO See-saw is drawn to scale
		18	Draw climbing frame to scale (measuring 2m x 3m)	**1d**	CAO Climbing frame is drawn to scale
		18	Draw sand pit to scale (measuring 1.8m x 3m)	**1e**	CAO Sand pit is drawn to scale
		18	Leave a 1m (to scale) gap around the edge of the equipment	**1f**	CAO All equipment is drawn with 1m (to scale) clearance around it

15	**5**			**5CA**	CAO *Must be supported by mathematical reasoning (if not given, revert to steps below)* Blue with supporting reason (i.e. It is £4.62 under budget/It is £2.92 cheaper than the Green sandpit which is also within budget) OR Green with supporting reason (i.e. it is £1.70 below budget/ Even though it is more expensive than the Blue sandpit it is worth spending £2.92 more to get a free cover)
		If the answer is incorrect revert to:			
		3	Use formula to correctly calculate delivery and set up cost of 1 sandpit	**1a**	CAO Blue ((0.45 x 25) + (0.8 x 28)) x 1.2 = £40.38 Green ((0.45 x 25) + (0.8 x 30)) x 1.2 = £42.30 Red ((0.45 x 25) + (0.8 x 32)) x 1.2 = £44.22
		3	Use formula to correctly calculate delivery and set up cost of all 3 sandpits	**1b**	CAO Blue ((0.45 x 25) + (0.8 x 28)) x 1.2 = £40.38 Green ((0.45 x 25) + (0.8 x 30)) x 1.2 = £42.30 Red ((0.45 x 25) + (0.8 x 32)) x 1.2 = £44.22
		10	Calculate total cost (incl. delivery and set up) of 1 sandpit	**1c**	AFT Blue – (£40.38) + £25 = (£65.38) Green – (£42.30) + £26 = (£68.30) Red – (£44.22) + £30 = (£74.22)
		10	Calculate total cost (incl. delivery and set up) of all 3 sandpits	**1d**	AFT Blue – (£40.38) + £25 = (£65.38) Green – (£42.30) + £26 = (£68.30) Red – (£44.22) + £30 = (£74.22)
		1	Their correct selection of a sandpit within budget	**1e**	CAO Blue or Green Their correct answer based on their calculations. *Answer must be within budget.*

16a	**6**			**6CA**	CAO Diagram must include accurate: • Title • Labelling of x and y axis • Appropriate and consistent scale on x and y axis • 10 points accurately *plotted (allow tolerance of +/- 1 small square)* Example below - OE 
		If the answer is incorrect revert to:			
		28	Appropriate labelling and titling of diagram	**1a**	CAO Appropriate scale and label used on x axis
		28	Scale is suitable and consistent	**1b**	CAO Appropriate scale and label used on y axis
		28	Plot the data for the height and shoe size	**1c**	CAO 6 out of 10 points are plotted accurately *(allow tolerance of +/- 1 small square)*
		28	Plot the data for the height and shoe size	**1d**	CAO All 10 points are plotted accurately *(allow tolerance of +/- 1 small square)*
16b		**28**	Identification of positive correlation	**1e**	CAO Positive correlation
16c		**23**	Finds the correct mode	**1f**	CAO 9