

## FREQUENCY TREES

### Pearson Edexcel - Tuesday 6 November 2018 - Paper 1 (Non-Calculator) Foundation Tier

1.

17	(a)	32, 48, 24, 8, 37, 11	C1	starts to interpret information, eg 48 or 8 in correct place	Incorrect notation with "37" and "61" can earn the method mark but not the accuracy mark.  Accept any equivalent fraction, decimal form 0.60(65...) or 0.61 or percentage form 60(65...) % or 60% or 61%
			C1	for 80 – 48 (= 32) and "32" – 8 (= 24)	
			C1	completes frequency tree correctly SC: award C2 if all correct frequencies are shown as fractions of 80.	
	(b)	$\frac{37}{61}$	M1	ft for $\frac{a}{b}$ with $a < "61"$ or $\frac{"37"}{b}$ with $b > "37"$	
			A1	ft from diagram in (a)	

### Pearson Edexcel - Thursday 7 June 2018 - Paper 2 (Calculator) Foundation Tier

2.

14		4 22 45 18 7 23 16	C1	for correctly placing at least one piece of data (22 or 16) <b>OR</b> for finding at least one unknown piece of data (4, 18, 7 or 23)	Unknown figures may be seen in working and need not be on the diagram  Award of this mark implies the first C1
			C1	for correctly placing at least one piece of data (22 or 16) <b>and</b> for finding at least one unknown piece of data (4, 18, 7 or 23)	
			C1	for a complete correct tree.  <b>SC C2</b> if all 6 figures are shown as the numerator of fractions in the correct places	

### Pearson Edexcel - Monday 6 November 2017 - Paper 2 (Calculator) Foundation Tier

3.

12	(a)		23, 177 10, 13, 85, 92	C3 (C2 (C1	Completes all information correctly. 3 or 4 correct frequencies or all correct probabilities) 2 correct frequencies)
	(b)		$\frac{13}{23}$	M1 A1	ft oe for $\frac{a}{23}$ , $a < 23$ or $\frac{13}{b}$ , $b > 13$ ft oe from (a)

### OCR Tuesday 11 June 2019 – Morning (Calculator) Foundation Tier

4.

11	a	12	1		
	b	24 41 14	2	B1 for one or two correct	No FT from wrong 41 as this can be achieved from final totals
	c	(V) 4 + 12 + 9 + 1 soi 26 (L) 10 + 15 + 10 [+ 0] soi 35 (C) 10 + their 14 + 11 + 4 soi 39  Chocolate from 26, 35, 39 cao	M2  A1	or M1 for one correct sum or two correct totals	A sum is eg 4 + 12 + 9 + 1 May be seen as 35 out of 100 oe Their 14 must match diagram For (C) allow 100 – their V – their L

**OCR Thursday 2 November 2017– Morning (Calculator) Foundation Tier**

5.

8	(a)		52	1		
	(b)		60 8 12 3	4	<b>B1</b> for each correct value OR <b>B1</b> for 60 <b>B1 FT</b> for 12 <b>B1 FT</b> for 8 and 3	Answers must be integers  Mark to candidate's advantage
	(c)		Practical test because 61 > 60 (Comparison explicitly seen)	3	<b>B1</b> for 61 or 52+9 or 84.7[2...]% or 85% [for practical]  <b>B1FT</b> for <i>their</i> 60 or <i>their</i> 83[.3..]% [for theory]  <b>B1FT</b> for correct conclusion based on <i>their</i> figures in the table, must see comparison	Accept denominator of 72  <b>FT</b> from their diagram, must give numerical values

**Pearson Edexcel – Sample Papers - Paper 1 (Non-Calculator) Foundation Tier**

6.

17	(a)		42, 58 39, 3, 53, 5	C1 starts to interpret information eg. one correct frequency  C1 continue to interpret information  C1 communicates all information correctly
	(b)		$\frac{5}{58}$	M1 fit for $\frac{a}{58}$ with $a < 58$ or $\frac{5}{b}$ with $b > 5$  A1 fit from (a)

**OCR Wednesday 8 November 2017– Morning (Calculator) Foundation Tier**

7.

7	(a)		15 15 20 10	4	<b>B3</b> for 4 correct or <b>B2</b> for 3 correct or <b>B1</b> for 2 correct  If 0 scored <b>SC1</b> for <i>their</i> apple = 2 × <i>their</i> grapefruit	
	(b)	(i)	80	1		
		(ii)	Orange juice might have run out or 50 is a small sample oe [so may not be representative] These are different men so may make different choices oe Scaling may not produce the exact number	1	Any valid practical reason. Eg running out, (others) being promoted.  Any valid statistical reason Eg Choices may be in different proportion [in this group]. Expectation so may be different	Do not accept any suggestion that men may have changed their mind.  Mark the best part of the statement and ignore any non-contradictory parts

AQA Monday 8 June 2020 – Morning (Calculator) Foundation Tier

8.

Q	Answer	Mark	Comments	
9	280 or 30 in correct position	B1		
	500 – 280 or 220	M1		
	0.8(0) × their 280 or 224 or 0.2(0) × their 280 or 56	M1	oe	
	their 220 – their 30 or 190 or 280 – their 224 or 280 – their 56 or 0.8(0) × their 280 or 224 and 0.2(0) × their 280 or 56	M1		
	Fully correct frequency tree	A1		
	<b>Additional Guidance</b>			
	Allow relative frequencies with denominator of 500 for B1 or M marks			
	Mark the diagram first, values in diagram have priority over working			
Correct values may be incorrectly placed for method marks				

Additional Guidance continues on the next page

Q	Additional Guidance continued		
9 cont	<p style="text-align: center;"><b>Total number of people</b></p> <p style="text-align: center;">500</p>	<p style="text-align: center;"><b>Men or women</b></p> <p style="text-align: center;">Men</p> <p style="text-align: center;">280</p> <p style="text-align: center;">Women</p> <p style="text-align: center;">220</p>	<p style="text-align: center;"><b>Result</b></p> <p style="text-align: center;">Finished</p> <p style="text-align: center;">224</p> <p style="text-align: center;">Did not finish</p> <p style="text-align: center;">56</p> <p style="text-align: center;">Finished</p> <p style="text-align: center;">190</p> <p style="text-align: center;">Did not finish</p> <p style="text-align: center;">30</p>

AQA Thursday 6 June 2019 – Morning (Calculator) Foundation Tier

9.

<b>9</b>	<b>Alternative method 1</b>		
	$56 \times 24.5$ or 1372 or $21 \times 27.5$ or 577.5 or $(14 + 8) \times 18$ or $22 \times 18$ or $14 \times 18 + 8 \times 18$ or $252 + 144$ or 396	M1	amount for basic or amount for sports or amount for movies  oe
	Any <b>two</b> of $56 \times 24.5$ or 1372 or $21 \times 27.5$ or 577.5 or $(14 + 8) \times 18$ or $22 \times 18$ or $14 \times 18 + 8 \times 18$ or $252 + 144$ or 396	M1dep	any <b>two</b> of the above implies M2
	$56 \times 24.5$ + $21 \times 27.5$ + $(14 + 8) \times 18$ or $22 \times 18$ or $14 \times 18 + 8 \times 18$ or $252 + 144$ or $1372 + 577.5 + 396$ or 2345.5	M1dep	full method that would lead to 2345.5 if evaluated correctly implies M3
	2345.50	A1	

<b>9 cont</b>	<b>Alternative method 2</b>		
	$14 \times (24.5 + 27.5 + 18)$ or $14 \times 70$ or 980 or $7 \times (24.5 + 27.5)$ or $7 \times 52$ or 364 or $8 \times (24.5 + 18)$ or $8 \times 42.5$ or 340 or $27 \times 24.5$ or 661.5	M1	amount for all 3 packages or amount for basic + sports or amount for basic + movies or amount for basic only
	Any <b>two</b> of $14 \times (24.5 + 27.5 + 18)$ or $14 \times 70$ or 980 or $7 \times (24.5 + 27.5)$ or $7 \times 52$ or 364 or $8 \times (24.5 + 18)$ or $8 \times 42.5$ or 340 or $27 \times 24.5$ or 661.5	M1dep	any <b>two</b> of the above implies M2
	$14 \times (24.5 + 27.5 + 18)$ or $14 \times 70$ + $7 \times (24.5 + 27.5)$ or $7 \times 52$ + $8 \times (24.5 + 18)$ or $8 \times 42.5$ + $27 \times 24.5$ or $980 + 364 + 340 + 661.5$ or 2345.5	M1dep	full method that would lead to 2345.5 if evaluated correctly implies M3
2345.50	A1		

<b>9 cont</b>	<b>Alternative method 3</b>		
	$56 \times (24.5 + 27.5 + 18)$ or $56 \times 70$ or 3920 or $35 \times 27.5$ or 962.5 or $(27 + 7) \times 18$ or $34 \times 18$ or $27 \times 18 + 7 \times 18$ or $486 + 126$ or 612	M1	amount if everyone has all 3 packages or amount for not having sports or amount for not having movies
	Any <b>two</b> of $56 \times (24.5 + 27.5 + 18)$ or $56 \times 70$ or 3920 or $35 \times 27.5$ or 962.5 or $(27 + 7) \times 18$ or $34 \times 18$ or $27 \times 18 + 7 \times 18$ or $486 + 126$ or 612	M1dep	any <b>two</b> of the above implies M2
	$56 \times (24.5 + 27.5 + 18)$ or $56 \times 70$ or 3920 – $35 \times 27.5$ or 962.5 – $(27 + 7) \times 18$ or $34 \times 18$ or $27 \times 18 + 7 \times 18$ or $486 + 126$ or 612 or $3920 - 962.5 - 612$ or 2345.5	M1dep	full method that would lead to 2345.5 if evaluated correctly implies M3
	2345.50	A1	

		<b>Additional Guidance</b>	
<b>9 cont</b>	2345.50(p)		M1M1M1A1
	2345.5		M1M1M1A0
	Working may be seen on the diagram		
	Allow all decimal values to be seen as equivalent fractions eg $\frac{1155}{2}$ for 577.5 for the M marks		
	A 'correct' calculation does not have to be evaluated correctly		
	Division or multiplication by 12 or division by 56 at the end will only lose the A mark eg $2345.50 \div 56 = 41.88$ per person		M1M1M1A0
	For the first two marks use the scheme that awards the most credit and do not apply the rules of choice		
	Addition may be implied by a column of figures		

**AQA Tuesday 6 November 2018 – Morning (Non-Calculator) Foundation Tier**



	Total for Screen 2 is 261	B1	
	Total is 348	B1ft	ft 87 + their 261
	Full price for Screen 1 is 72	B1	
	Child price for Screen 2 is 53	B1	
	Full price for Screen 2 is 208	B1ft	ft if their full price value for Screen 2 and their child price value for Screen 2 sum to their total for Screen 2 or their two full price values and their two child price values sum to their overall total
<b>Additional Guidance</b>			
<b>8</b>	Mark the diagram, but if diagram completely blank, accept answers in working only if absolutely clear which entry is being referenced		
	Example of final B1ft: Screen 2 Child Price recorded as 68, leads to 193 as Screen 2 full price		
	<pre> graph LR     348((348)) --- Screen1[Screen 1]     348 --- Screen2[Screen 2]     Screen1 --- 87((87))     Screen2 --- 261((261))     87 --- Full1[Full]     87 --- Child1[Child]     Full1 --- 72((72))     Child1 --- 15((15))     261 --- Full2[Full]     261 --- Child2[Child]     Full2 --- 208((208))     Child2 --- 53((53)) </pre>		<b>B5</b>

AQA Tuesday 12 June 2018 – Morning (Calculator) Foundation Tier

11.

<b>12(a)</b>	<b>Alternative method 1</b>		
	512 ÷ 743 or 0.6 or 0.68... or 0.69 or 758 ÷ 1065 or 0.7 or 0.71...	M1	oe
	0.6 or 0.68... or 0.69 and 0.7 or 0.71... and Week 2	A1	
	<b>Alternative method 2</b>		
	512 ÷ 231 or 2.2 or 2.21... or 2.22 or 758 ÷ 307 or 2.4 or 2.46... or 2.47 or 2.5	M1	oe
	2.2 or 2.21... or 2.22 and 2.4 or 2.46... or 2.47 or 2.5 and Week 2	A1	
	<b>Alternative method 3</b>		
	$\frac{512}{743}$ or $\frac{758}{1065}$	M1	$\frac{512}{231}$ or $\frac{758}{307}$
	$\frac{545280}{791295}$ and $\frac{563194}{791295}$ and Week 2	A1	$\frac{157184}{70917}$ and $\frac{175098}{70917}$ and Week 2

Continues on next page

<b>Additional Guidance</b>		
<b>12(a)</b> <b>cont</b>	Accept working in percentages	
	Proportions can be calculated using reciprocals in both Alternative method 1 and Alternative method 2 eg 231 ÷ 512	
	60(%) or 68(%) or 69(%) or 70(%) or 71(%)	M1
	(10% = 74.3 followed by) $\frac{512}{74.3} \times 10$ or (10% = 106.5 followed by) $\frac{758}{106.5} \times 10$ is oe for Alternative method 1	M1

<b>12(b)</b>	396 × 3.74 or 1481.04 or 164 × 5.29 or 867.56 or 362 × 0.51 or 184.62 or 143 × 0.04 or 5.72	M1	oe Week 2 profit on 10-inch pizzas  Week 2 profit on 12-inch pizzas  Week 2 loss on 10-inch pizzas  Week 2 loss on 12-inch pizzas
	their 1481.04 + their 867.56 or 2348.6(0) or their 184.62 + their 5.72 or 190.34 or their 1481.04 – their 184.62 or 1296.42 or their 867.56 – their 5.72 or 861.84	M1dep	oe Week 2 profit for both pizzas  Week 2 loss for both pizzas  Week 2 profit – loss on 10-inch pizzas  Week 2 profit – loss on 12-inch pizzas
	their 2348.6(0) – their 190.34 or their 1296.42 + their 861.84 or 2158.26	M1dep	Total week 2 profit from total profit – total loss
	(£)87.71 or (£)262.71 and Yes or (£)1983.26 and Yes or (£) 2158.26 and (£)2070.55 and Yes	A1	Total week 2 profit – (total week 1 profit + cost of adverts) Total week 2 profit – total week 1 profit  Total week 2 profit – cost of adverts  Condone eg £87.71p

Continues on next page

<b>Additional Guidance</b>		
<b>12(b)</b> <b>cont</b>	Accept use of inequality sign or words to imply "Yes" in final answer	
	Accept –184.62 and –5.72 for first M1	
	Accept working in pence to calculate losses for M1	
	2070.55 is total week 1 profit + cost of adverts	
	Answer of (£)87.71 does not require "Yes" to be stated as the advert cost has been subtracted	M1M1M1A1

AQA Wednesday 8 November 2017 – Morning (Calculator) Foundation Tier

12.

<b>26a</b>	80	B1					
	44 and 36	B1ft	ft their $80 - 44$				
	27 and 9	B1ft	ft their $36 \div 4 \times 3$ and ft their $36 \div 4$				
	15 and 29	B1ft	ft $42 -$ their 27 and ft $38 -$ their 9 Total on ft must be 44				
	<b>Additional Guidance</b>						
	<table border="0" style="width: 100%;"> <thead> <tr> <th style="width: 50%; text-align: center;">Voucher</th> <th style="width: 50%; text-align: center;">Gender</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"> </td> <td style="text-align: center; vertical-align: middle;">                 B1B1B1B1             </td> </tr> </tbody> </table>		Voucher	Gender		B1B1B1B1	
	Voucher	Gender					
		B1B1B1B1					
	Mark diagram only, do not allow misread						
	Values may be rounded up or down to whole numbers provided the total is correct						
Penalise the use of relative frequencies on the first occurrence only							
If relative frequencies are shown the denominator must be 80 and not simplified eg $\frac{3}{4}$ and $\frac{1}{4}$ is B0							

Additional Guidance continues on the next page

<b>26a cont</b>	<table border="0" style="width: 100%;"> <tr> <td style="width: 30%;"></td> <td style="text-align: center;"><b>Voucher</b></td> <td style="text-align: center;"><b>Gender</b></td> </tr> <tr> <td></td> <td style="text-align: center;">           Yes → (44)         </td> <td style="text-align: center;">           Men → (33)            Women → (11)         </td> </tr> <tr> <td></td> <td style="text-align: center;">           No → (36)         </td> <td style="text-align: center;">           Men → (9)            Women → (27)         </td> </tr> <tr> <td style="text-align: center;">(80)</td> <td></td> <td></td> </tr> </table>		<b>Voucher</b>	<b>Gender</b>		Yes → (44)	Men → (33) Women → (11)		No → (36)	Men → (9) Women → (27)	(80)			B1B1B0B1ft
		<b>Voucher</b>	<b>Gender</b>											
	Yes → (44)	Men → (33) Women → (11)												
	No → (36)	Men → (9) Women → (27)												
(80)														
	<table border="0" style="width: 100%;"> <tr> <td style="width: 30%;"></td> <td style="text-align: center;"><b>Voucher</b></td> <td style="text-align: center;"><b>Gender</b></td> </tr> <tr> <td></td> <td style="text-align: center;">           Yes → (44)         </td> <td style="text-align: center;">           Men → (30)            Women → (14)         </td> </tr> <tr> <td></td> <td style="text-align: center;">           No → (36)         </td> <td style="text-align: center;">           Men → (12)            Women → (24)         </td> </tr> <tr> <td style="text-align: center;">(80)</td> <td></td> <td></td> </tr> </table>		<b>Voucher</b>	<b>Gender</b>		Yes → (44)	Men → (30) Women → (14)		No → (36)	Men → (12) Women → (24)	(80)			B1B1B0B1ft
	<b>Voucher</b>	<b>Gender</b>												
	Yes → (44)	Men → (30) Women → (14)												
	No → (36)	Men → (12) Women → (24)												
(80)														

<b>26b</b>	85% or 0.85	M1	
	27.2 ÷ 0.85 or 27.2 ÷ 85 (× 100) or 0.32	M1dep	
	32(.00)	A1	Correct money notation Allow £32.00p
	<b>Additional Guidance</b>		
	32.0		M1M1A0

AQA Thursday 25 May 2017– Morning (Non-Calculator) Foundation Tier

13.

<b>6(a)</b>	450 in Drink coffee Yes	B1	
	50 in Drink coffee No	B1ft	ft 500 – their 450
	90 in At least three cups Yes	B1ft	ft their 450 ÷ 5
	360 in At least three cups No	B1ft	ft their 450 – their 90
	<b>Additional Guidance</b>		
	for 90 ft , their 450 ÷ 5 must be truncated or rounded up to the nearest whole number		
	for 360 ft, their 450 – their 90 must give a positive integer		
	Accept unambiguous values elsewhere but diagram values take precedence		
	Correct relative frequencies seen, withhold first B1 that would have been awarded. eg $\frac{400}{500}, \frac{100}{500}, \frac{80}{400}, \frac{320}{400}$ eg $\frac{400}{500}, \frac{100}{500}, \frac{80}{500}, \frac{320}{500}$		B0 B0ft B1ft B1ft B0 B0ft B0ft B0ft
	Do not accept probabilities eg $\frac{9}{10}, \frac{1}{10}, \frac{4}{5}, \frac{1}{5}$ eg 0.9, 0.1, 0.8, 0.2		B0 B0

<b>6(b)</b>	<b>Alternative method 1</b>		
	$\frac{\text{their } 90}{500}$ (or partially simplified)	B1ft	oe eg decimal ft or correct
	$\frac{9}{50}$	B1ft	ft their unsimplified fraction fully simplified $\frac{9}{50}$ scores B1B1
	<b>Alternative method 2</b>		
	$\frac{9}{10} \times \frac{1}{5}$	M1	oe eg $0.9 \times 0.2$ or $0.18$
	$\frac{9}{50}$	A1	
	<b>Additional Guidance</b>		
	$\frac{90}{500} = \frac{18}{100}$		B1B0
	$\frac{80}{500} = \frac{4}{25}$ (with 80 in part(a) then ft)		B1ftB1ft
	$\frac{80}{500} = \frac{4}{25}$ (with 80 not in part (a) so not ft but then simplest form correct)		B0B1ft
	$\frac{80}{500} = \frac{8}{50}$ (with 80 not in part (a) so not ft and simplest form not correct)		B0B0
	$\frac{45}{250}$		B1B0
	80 in (a), $\frac{8}{50}$ here		B1B0
	$\frac{90}{400} = \frac{9}{40}$		B0B1ft
$\frac{500}{90} = \frac{50}{9}$		B0B1ft	
Do not accept 18% for first mark			