FACTORS, MULTIPLES AND PRIMES

Pearson Edexcel - Tuesday 19 May 2020 - Paper 1 (Non-Calculator) Foundation Tier

1.

2	18	B1	cao	18 must be the only number selected for this award

Pearson Edexcel - Thursday 4 June 2020 - Paper 2 (Calculator) Foundation Tier

2.

12	L23, U23, L29, U29	B2	for all 4 outcomes with no extras or repeats	Pairs must be unambiguous and in the correct order of letter number
		(B1	for at least 2 correct outcomes out of at most 8 different outcomes **or** for indicating 23 and 29 are the only prime numbers between 20 and 30)	

Pearson Edexcel - Tuesday 21 May 2019 - Paper 1 (Non-Calculator) Foundation Tier

3.

4	23 or 29	B1	for 23 or 29	Do not award if any other numbers are included, but award if both 23 and 29 are shown.

Pearson Edexcel - Thursday 6 June 2019 - Paper 2 (Calculator) Foundation Tier

4.

3	At least **two** of 1, 3, 5, 15	B1	for at least two of 1, 3, 5, 15 with no incorrect values	Accept 3 × 5 etc.

Pearson Edexcel - Tuesday 11 June 2019 - Paper 3 (Calculator) Foundation Tier

5.

2	48 or 56	B1	for 48 or 56	Accept either or both. Do not award the mark if other numbers are shown with either.

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

6.

3	5	B1	cao	

7.

10	3 and 29 or 13 and 19	M1	for two numbers with a sum of 32, only one of which is prime, eg 5, 27 or 1, 31	Do not accept 1 as a prime number.
		A1	cao	

Pearson Edexcel - Monday 12 November 2018 - Paper 3 (Calculator) Foundation Tier

8.

15		6	P1	for listing the multiples of 3 **and** 5 to at least the number 15 **or** 3×5 (= 15)	3, 6, 9, 12, 15 and 5, 10, 15
			P1	for considering multiples of 15, eg 4 multiples of 15 identified **or** $100 \div 15$ (=6.6..) **or** an answer of 7	If in a list of multiples of 3 and 5, multiples of 15 must be clearly identified Sight of 6.6(…) or $6\frac{2}{3}$ oe or an answer of 7 gets 2 marks.
			A1	cao	

Pearson Edexcel - Thursday 24 May 2018 - Paper 1 (Non-Calculator) Foundation Tier

9.

5	14	B1	cao	

10.

11	(a)	Example	C1	for a correct example, eg $3 \times 4 = 12$ or $12 \div 3 = 4$ **or** a statement eg '3 is a factor of 12' or '1 is a factor of every number'	This may be seen, for example, in a factor tree or in a list of factors, but there must be no incorrect factors on the tree or in the list
	(b)	Example	C1	for an example, eg 23 **or** a statement eg. 'the tens digit may be even' or 'the last digit only needs to be odd'	

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

11.

6		3 and 9	P1	for starting to list factors of 36 **or** multiples of 3 **or** odd numbers	Must be at least 3.
			A2	cao	In either order
			(A1	for one correct answer)	

12.

10	(a)	23, 29	B2	for 23 **and** 29 **and** no extras	
			(B1	for one correct **and** no more than one incorrect)	2 correct and 1 incorrect award B1
	(b)	Explanation	C1	for decision **and** explanation eg yes and because all other even numbers have 2 as a factor	Decision is required may be yes or implied by she is ... oe. Do not accept statements that are ambiguous, or contradictory

Pearson Edexcel - Tuesday 12 June 2018 - Paper 3 (Calculator) Foundation Tier

13.

6	1, 2, 3, 5, 6, 10, 15, 30	B2	cao	Numbers may be shown in any order eg paired; Accept numbers repeated
		(B1	for at least 3 correct factors with no more than one incorrect answer)	

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

14.

2		42 or 48	B1	42 or 48

15.

7		No	B1	for showing 11 or 13 or 17 or 19 with no non-prime numbers between 10 and 20, or for showing 23 or 29 with no non-prime numbers between 20 and 30. Ignore any numbers shown below 11.
		(supported)	C1	"No" supported by listing 11, 13, 17, 19 and 23, 29 and no non-prime

Pearson Edexcel - Wednesday 8 November 2017 - Paper 3 (Calculator) Foundation Tier

16.

3		1, 2, 3, 6, 9, 18	B2	for all 6 factors with no incorrect
			[B1	for at least 3 factors with no more than one error]

17.

9		2, 7 or 3, 13 or 5, 11 or 2, 23	M1	for identifying two different prime numbers or two numbers which add up to give a square number or for a list of at least 3 prime numbers with no errors **and** a list of 3 square numbers with no errors.
			A1	for two correct prime numbers

Pearson Edexcel – Specimen 2 - Paper 1 (Non-Calculator) Foundation Tier

18.

11		8, 12, 20 **or** 4, 8, 28 **or** 4, 12, 24 **or** 4, 16, 20	P1	Adds 3 different multiples of 4
			A1	

Pearson Edexcel – Specimen 2 - Paper 3 (Calculator) Foundation Tier

19.

3		even mult of 7	B1	for an even multiple of 7

20.

7		1,3,9 or 2,6,9 or 2,3,6 or 2,3,18 or 2,9,18	M1 A1	3 factors of 18 or 3 numbers with prime total eg 2, 3, 6

Pearson Edexcel – Specimen 1 - Paper 1 (Non-Calculator) Foundation Tier

21.

8	(a)		example	C1	for appropriate example shown
	(b)		example	C1	conclusion

Pearson Edexcel – Specimen 1 - Paper 2 (Calculator) Foundation Tier

22.

2		9	B1	

Pearson Edexcel – Specimen 1 - Paper 3 (Calculator) Foundation Tier

23.

4	(i)		12	B1 cao
	(ii)		2 or 5	B1

OCR Thursday 05 November 2020- Morning (Non-Calculator) Foundation Tier

24.

1	(a)	(i)	5	1		
1	(a)	(ii)	10	1		
1	(b)		Two of 11, 13, 17, 19	2	**B1** for one correct and one other or more than two of 11, 13, 17, 19	

OCR November 09 November 2020- Morning (Calculator) Foundation Tier

25.

1	a		One from 1, 2, 4, 10 or 20	1		If more than one, all must be correct
	b		Any multiple of 20	1		If more than one, all must be correct Answer 5 × 4 = 20 scores 0

OCR Tuesday 5 November 2019 – Morning (Calculator) Foundation Tier

26.

2	a		3 5 6 15 in any order	2	B1 for two or three correct factors	
	b		5	1		

OCR Monday 11 November 2019 – Afternoon (Calculator) Foundation Tier

27.

1	(a)	(i)	[an] odd [number]	1		
		(ii)	[a] prime [number]	1		
	(b)	(i)	24 and 28 only	1		
		(ii)	$12n$	1		Where n is integer. 12, 24, 36, 48, …
	(c)		$(4 - 1) \times 2$	1		
	(d)		$\dfrac{7}{100}$	1		Accept equivalent proper fractions

OCR Tuesday 21 May 2019 – Morning (Calculator) Foundation Tier

28.

2	(a)	(i)	Any odd number	1	Accept more than 1 if all correct
		(ii)	1, 5 or 25	1	If more than one, all must be correct (condone factor products)
		(iii)	23 or 29	1	Accept both
	(b)		Explanation based on $\sqrt{55}$ or 7^2 and 8^2 eg $\sqrt{55}$ is between 7 and 8 or 55 is between 49 and 64 [so it cannot be a square number] $\sqrt{55}$ [= 7.4..] is not a whole number	2	B1 for 7.4… or $7^2 = 49$ or $8^2 = 64$ or 7^2 and 8^2 or 49 and 64 e.g. $\sqrt{55} = 7.4$

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

29.

6	a		30 60 90 120 150	2	B1 for four correct	For B1 ignore wrong values Condone extra correct values for 2 marks
	b		30 cao	1		

OCR Tuesday 6 November 2018 – Morning (Calculator) Foundation Tier

30.

4	(a)	(i)	Any even number	1		Accept more than one, if all even
		(ii)	1 or 5 or 25	1		Accept more than one, if all correct Condone 1 × 25 or 5 × 5
		(iii)	11 or 13 or 17 or 19	1		Accept more than one, if all correct
		(iv)	Any cube number	1		Accept more than one, if all correct Do not accept e.g. 2 ×2 × 2 or 2^3
	(b)		7	2	M1 for 5, 7 and 7, 13	Could be a correct Venn diagram

OCR Thursday 7 June 2018 – Morning (Non Calculator) Foundation Tier

31.

1	a		12 or 18	1		Allow 12 and 18 but no extras
	b		Two from 2, 3, 5	2	B1 for one correct and one error	If more than 2 values listed, max B1 scored

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

32.

2	(a)	(i)	Any multiple of 13	1		Allow 13
		(ii)	41, 43 or 47	1		
	(b)		112	2	B1 for any common multiple of 16 and 28 or one complete, correct list of multiples leading to 112 or $2^4 × 7$	16,32,48,64,80,96,112 or 28, 56, 84,112

OCR Monday 6 November 2017– Morning (Calculator) Foundation Tier

33.

17			122 with justification showing 121 or $11^2 + 1$ and 125 or 5^3 - 3	4	B3 for answer 122 OR M1 for at least 5 square numbers (or 5 square numbers + 1) isw M1 for at least 3 cube numbers (or 3 cube numbers – 3) isw M1 for reducing their list to non-primes If 0 scored, SC1 for answer 5 or 17 or 37 or 61 or 101	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144 2, 5, 10, 17, 26, 37, 50, 65, 82, 101, 122, 145 1, 8, 27, 64, 125 5, 24, 61, 122 Implied by any non-prime answer less than 150

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

34.

4		1, 2, 4, 5, 10, 20	M1	for at least 3 factors
			A1	for all factors with no additions

Pearson Edexcel –Sample Papers - Paper 2 (Calculator) Foundation Tier

35.

6		eg. 1, 2, 18	P1	Starts process eg. Lists at least 2 multiples from 9,18,27,36,45 **or** lists at least 2 factors from 1, 2, 4, 5, 8, 10, 20, 40
			P1	Continues process eg. gives a set of numbers whose sum is greater than 20 but less than 30 but numbers may not all be appropriate factors/multiples
			A1	Gives 3 numbers that meet all the criteria

Pearson Edexcel – Sample Papers - Paper 3 (Calculator) Foundation Tier

36.

11	(i)		17	B1
	(ii)	1	16	B1

OCR Sample Question Paper 2 – Morning/Afternoon (Non - Calculator) Foundation Tier

37.

7	(a)	54	1 1 AO3.1a		
	(b)	5	2 1 AO1.1 1 AO3.1a	**M1** for a complete factor tree **oe**	

38.

8	(a)	8	3 2 AO1.3a 1 AO3.1b	**M1** for dividing by 3 or 13 **M1** for dividing by remaining factor	**M1** for multiplying 3 by 13 **M1** for dividing by 39 or listing multiples of 39
	(b)	Any three valid answers e.g. 2, 7, 23	3 1 AO1.1 2 AO3.1a	**B1** for each If zero scored **SC1** for at least 3 primes and 3 squares **seen**	

39.

Q	Answer	Mark	Comments
5(a)	35×8 or 38×5	B1	

	Additional Guidance		
	Ignore any answer to their calculation		
	Accept a correct response alone or selected in the working space if the answer box is blank or crossed out		

Q	Answer	Mark	Comments
5(b)	$5 \times 3 - 8$ or $3 \times 5 - 8$	B1	

	Additional Guidance		
	Ignore any answer to their calculation		
	Accept a correct response alone or selected in the working space if the answer box is blank or crossed out		

Q	Answer	Mark	Comments
5(c)	$\dfrac{6+5}{8+3} = 1$ or $\dfrac{6+5}{3+8} = 1$	B1	

	Additional Guidance		
	Accept a correct response alone or selected in the working space if the answer box is blank or crossed out		

AQA Thursday 11 June 2019 – Morning (Calculator) Foundation Tier

40.

13	41, 43 and 47	B2	B1	at least two of 41, 43 and 47 with at most one other number
	Additional Guidance			

AQA Thursday 7 June 2018 – Morning (Calculator) Foundation Tier

41.

10	8	B1	
	Additional Guidance		

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

42.

24	At least two common factors of 72 and 120 from 2, 3, 4, 6, 8, 12, 24 or 72 = 2 (×) 2 (×) 2 (×) 3 (×) 3 or 120 = 2 (×) 2 (×) 2 (×) 3 (×) 5	M1	May be seen on a diagram, eg factor tree
	At least two common multiples of 6 and 9 from 18, 36, 54…	M1	
	(HCF =) 24 selected from factors or a = 24 or (LCM =) 18 selected from multiples or b = 18	M1	oe eg HCF = 2 (×) 2 (×) 2 (×) 3 24 can be implied from their numerator oe eg LCM = 2 (×) 3 (×) 3 18 can be implied from their denominator oe eg $\dfrac{2 \times 2 \times 2 \times 3}{2 \times 3 \times 3}$
	$1\frac{1}{3}$ or $\frac{4}{3}$ or 1.33…	A1	oe Accept $\dfrac{24}{18}$ Ignore further incorrect cancelling

Additional Guidance		
HCF = 24 and LCM = 18		M1M1M1
HCF = 24		M1M0M1
LCM = 18		M0M1M1

AQA Monday 6 November 2017 – Morning (Calculator) Foundation Tier

43.

11	7	B1	

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

44.

10	Correct evaluation of the sum of three multiples of 10 where the sum is not a multiple of three and No eg 10 (+) 20 (+) 40 = 70 and No or Correct evaluation of the sum of three multiples of 10 and she is only correct if the total is a multiple of 30	B2	B1 for correct evaluation of the sum of three multiples of 10 eg 10 (+) 20 (+) 40 (=) 70 10 (+) 20 (+) 30 (=) 60
	Additional Guidance		
	Ignore incorrect evaluations alongside a correct evaluation		
	The multiples do not have to be different		
	eg 20 (+) 20 (+) 30 = 70 so she is not correct		B2
	eg 10 (+) 10 (+) 10 = 30 or 3 × 10 = 30		B1

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

45.

14(a)	16 in top row	B1	
	5 in left column	B1	
	All totals correct or All totals correct including for their 16 and their 5	B2ft	B1ft for seven or more correct totals for the given numbers and their 16 and their 5 (if present) If their 16 is 0, 1, 4 or 9, do not consider those totals If their 5 is 0, 2, 3 or 7, do not consider those totals

Additional Guidance

Fully correct table

+	1	4	9	16
2	3	6	11	18
3	4	7	12	19
5	6	9	14	21
7	8	11	16	23

B4

their correct number of primes their number of completed cells $\frac{6}{16}$ or $\frac{3}{8}$ if (a) fully correct	B1ft	oe ft their table even if incomplete but must be attempted

Additional Guidance		
Correct decimal and percentage values are 0.375 and 37.5% Do not accept truncated or rounded values unless the correct value has been seen Do not accept ratios or words		

14(b)

+	1	4	9	
2	3	6	11	
3	4	7	12	
7	8	11	16	

Answer $\frac{4}{9}$

B1ft

AQA Thursday 8 June 2017– Morning (Calculator) Foundation Tier

46.

2	72		B1	

AQA Tuesday 13 June 2017 Morning– Morning (Calculator) Foundation Tier

47.

	1, 2, 3, 5, 6, 10, 15, 30		B2	B1 for one, two or three omissions or incorrect numbers

<table>
<tr><td rowspan="6">9(a)</td><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">Accept factors as products eg 1 × 30</td><td></td></tr>
<tr><td colspan="2">Accept factors as pairs in brackets eg (1,30)</td><td></td></tr>
<tr><td colspan="2">Disregard any repeated factors or reversed factor pairs</td><td></td></tr>
<tr><td colspan="2">Disregard any negative factor pairs –5 × –6</td><td></td></tr>
<tr><td colspan="2">1, 2, 3, 5, 6, 10, 15, 30 shown in working
1, 2, 3, 5, 6, 10, 15 on answer line (Allow transcription error)</td><td>B2</td></tr>
<tr><td></td><td colspan="2">1, 2, 3, 4, 5, 6, 10, 12, 15
(one omission of 30 and two incorrect numbers in 4 and 12)</td><td>B1</td></tr>
</table>

<table>
<tr><td rowspan="8">9(b)</td><td>$\dfrac{3}{8}$</td><td>B1ft</td><td>oe fraction, decimal or percentage
ft their list in (a) with at least four numbers, at least one of which is two-digit</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td>$\dfrac{3}{8}$ is B1, if not $\dfrac{3}{8}$ refer to 9(a) for possible ft</td><td></td></tr>
<tr><td>0.375 or 37.5%</td><td>B1</td></tr>
<tr><td>Ignore further working with description of probability eg $\dfrac{3}{8}$ unlikely</td><td>B1</td></tr>
<tr><td>Ignore further working with attempts to convert to percentage or decimal
eg $\dfrac{3}{8}$ = 37% or 38%</td><td>B1</td></tr>
<tr><td>3 : 8 in working with $\dfrac{3}{8}$ on answer line</td><td>B1</td></tr>
<tr><td>37% or 38% without $\dfrac{3}{8}$ or 37.5% in working</td><td>B0</td></tr>
<tr><td>3 : 8 on answer line</td><td>B0</td></tr>
</table>

AQA Sample Paper 2– Morning (Calculator) Foundation Tier

48.

1	26	B1	

49.

2	4	B1	