STANDARD FORM

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

1.

8	(a)	5.62×10^{-3}	B1	cao	
	(b)	1452	B1	cao	

Pearson Edexcel - Thursday 8 November 2018 - Paper 2 (Calculator) Higher Tier

2.

7	(a)	8.623×10^{-5}	B1	cao	
	(b)	7.44×10^{6}	M1	for $\frac{3200+0.051}{0.00043}$ or $\frac{3200.051}{0.00043}$ **or** performs an operation eg shows 163.2, 7441860.5, 118.6(…) **or** an answer or $7.44(\ldots.) \times 10^{n}$ where $n \neq 6$ or 7441979(….) **or** an answer of 7.4×10^{6}	7441979.0689…
			A1	for $7.44(1979\ldots) \times 10^{6}$	If a correct answer is shown in working and then rounded incorrectly, award full marks. Answer need only be given correctly to 3 sig fig; if following digits are incorrect ignore them.

Pearson Edexcel - Specimen Papers Set 1 - Paper 3 (Calculator) Higher Tier

3.

19	(a)		4.23×10^{-4}	B1
	(b)		45000	B1

4.

8		$x = 21,\ y = 50$	P1	process to start solving problem eg. form an appropriate equation
			P1	complete process to isolate terms in x
			A1	for $x = 21$
			P1	complete process to find second variable
			A1	$y = 50$

Pearson Edexcel - Sample Paper 3 - (Calculator) Higher Tier

5.

8		6.8×10^{-5}	B1

Pearson Edexcel - Friday 6 November 2015 - Paper 2 (Calculator) Higher Tier

6.

16	(a)		6.4×10^{8}	1	B1 cao
	(b)		5×10^{2}	2	M1 for $3 \div 6 \times 10^{7-4}$ or 0.5×10^{3} or 500 or 30 000 000÷60 000 A1 cao

Pearson Edexcel - Monday 8 June 2015 - Paper 2 (Calculator) Higher Tier

7.

15	(a)		0.000064	1	B1 for 0.000064 or $\frac{1}{15625}$ or 6.4×10^{-5} oe
	(b)		4.2875×10^{7}	2	B2 cao (B1 for digits 42875 or 4.3×10^{7} or 4.29×10^{7} or 4.288×10^{7})

Pearson Edexcel - Friday 13 June 2014 - Paper 2 (Calculator) Higher Tier

8.

16			1.875×10^{8}	2	M1 for digits 1875 A1 cao

Pearson Edexcel - Wednesday 6 November 2013 - Paper 1 (Non-Calculator) Higher Tier

9.

14	(a)		$\frac{1}{5}$	1	B1 oe
	(b)		$\frac{1}{9}$	1	B1 cao
	(c)	$9\times10^{4}\times3\times10^{3}$	2.7×10^{8}	2	M1 27×10^{7} oe or $9\times3\times10^{4+3}$ A1 cao

Pearson Edexcel - Friday 8 November 2013 - Paper 2 (Calculator) Higher Tier

10.

19	(a)		0.00078	1	B1 cao
	(b)		9.56×10^{7}	1	B1 cao

Pearson Edexcel - Thursday 28 February 2013 - Paper 1 (Non-Calculator) Higher Tier

11.

16	(a)		820 000	1	B1 cao
	(b)		3.76×10^{-4}	1	B1 cao
	(c)		5×10^{8}	2	M1 for $2.3 \div 4.6 \times 10^{12-3}$ oe or 500 000 000 or 0.5×10^{9} A1 cao (accept 5.0×10^{8}

Pearson Edexcel - Friday 2 March 2012 - Paper 3 (Non-Calculator) Higher Tier

12.

14	(a)		643000	1	B1 cao
	(b)	$2\times10^{7}\times8\times10^{-12}=16\times10^{7-12}=16\times10^{-5}=1.6\times10^{-4}$	1.6×10^{-4}	2	M1 for $16\times10^{7-12}$ **or** 16×10^{-5} **or** 0.00016 **or** 1.6×10^{n} where n is an integer **or** $\frac{16}{100000}$ oe **or** $\frac{16}{100000}$ simplified correctly A1 cao

Pearson Edexcel - Wednesday 9 November 2011 - Paper 3 (Non-Calculator) Higher Tier

13.

13	(a)	$(6 \times 10^8) \times (4 \times 10^7) = 24 \times 10^{8+7}$ 24×10^{15}	2.4×10^{16}	2	M1 $24 \times 10^{8+7oe}$ or 24 000 000 000 000 000 or 2.4×10^n A1 cao
	(b)	$(6 \times 10^8) + (4 \times 10^7)$ $= 6 \times 10^8 + 0.4 \times 10^8$	6.4×10^8	2	M1 $6\times10^8 + 0.4\times10^8$ or $60\times10^7 + 4\times10^7$ or 600 000 000 + 40 000 000 or 640 000 000 oe or 6.4×10^n A1 cao

Pearson Edexcel - Friday 10 June 2011 - Paper 4 (Calculator) Higher Tier

14.

19		$(6.21795 \times 10^{10}) \div 510\,072\,000$ $= 121.9(03378\ldots)$	1.22×10^2	3	M1 for SA Jupiter ÷SA Earth eg $(6.21795 \times 10^{10}) \div 510\,072\,000$ oe, eg 62000÷ 51 or digits 121 …. or digits 122 A1 for 121 – 122 A1 for 1.21×10^2 – 1.22×10^2

Pearson Edexcel - Friday 12 November 2010 - Paper 4 (Calculator) Higher Tier

15.

17	(a)	8.25×10^7	8.25×10^7	1	B1 cao
	(b)	$= 14.56 \times 10^{-16}$	1.456×10^{-15}	2	M1 for digits 1456×10^n or $A \times 10^{-15}$, $1 < A < 2$ A1 for 1.456×10^{-15}

Pearson Edexcel - Friday 11 June 2010 - Paper 4 (Calculator) Higher Tier

16.

18	(a)		1.55×10^4	1	B1 cao
	(b)		0.00248	1	B1 cao
	(c)	$24500 \div 0.000125 = 196000000$	1.96×10^8	2	B2 cao (B1 for 196000000 or $1.96\times10^4 \times10^4$ oe or 1.96×10^n or digits 196×10^n where ***n*** is a number other than 8, or absent.)

Pearson Edexcel - Thursday 5 November 2009 - Paper 3 (Non-Calculator) Higher Tier

17.

13	(a)		2.13×10^5	1	B1 cao
	(b)		1.23×10^{-3}	1	B1 cao (SC If both numbers are written correctly to 2 Sig fig then award B0,B1)

OCR GSCE – Tuesday 3 November 2020 – Paper 4 (Calculator) Higher Tier

18.

1	(a)	(i)	6.5×10^3	1		In all parts condone trailing zeros
		(ii)	5.84×10^{-2}	1		
	(b)		7.56×10^3	1		

OCR GSCE – Tuesday 5 November 2019 – Paper 4 (Calculator) Higher Tier

19.

2			1.5×10^3	4	**B3** for 1500 or $1.50[0] \times 10^3$ or $1.48[9..] \times 10^3$ or 1.49×10^3 or **B2** for 1489.1… or **M1** for $\frac{5.8 \times 10^6}{\sqrt{4.1 \times 10^8 \times 3.7 \times 10^{-2}}}$ and **M1** for writing *their* answer correct to 2s.f. and in standard form	implied by 3894.8… or 3894.9 need to see where *their* answer comes from e.g. longer figure or a simple fraction

OCR GSCE – Thursday 6 June 2019 – Paper 5 (Non-Calculator) Higher Tier

20.

1			8×10^7 final answer	2	**M1** for ans figs 8 or for ans $k \times 10^7$ where $0 < k < 10$	

OCR GSCE – Tuesday 11 June 2019 – Paper 6 (Calculator) Higher Tier

21.

2			Poppy, Sesame, Pumpkin with correct comparable values shown	4	**B3** for all 3 quantities seen correct in comparable form or **B2** for 8.4×10^{-5} or 8.4×10^{-2} seen or seen correct in comparable form: • pumpkin with poppy eg implied by [250 poppy =] 0.075 or • pumpkin with sesame eg implied by [250 sesame =] 0.91 or **B1** poppy and sesame seen correct in comparable form or [pumpkin =] 0.084 or 0.000 084 seen or [250 poppy =] 0.000 075 oe seen or [250 sesame =] 0.000 91 oe seen	Condone weights as answer Quantities given in the question (bold in table) need not be rewritten Comparable forms include: In kilograms: Pop 0.000 000 3 3×10^{-7} Pum 0.000 084 8.4×10^{-5} Ses 0.000 003 64 **3.64×10^{-6}** In grams: Pop 0.000 3 **3×10^{-4}** Pum 0.084 8.4×10^{-2} Ses 0.003 64 3.64×10^{-3} Must not be a mix of standard and ordinary form Accept consistent multiples for full marks. eg. 250 poppy = 0.075 and 250 sesame seeds = 0.91 May be all fractions with common denominator

OCR GSCE – Thursday 8 November 2018 – Paper 5 (Non-Calculator) Higher Tier

22.

1	**(a)**		2	**2**	**B1** for $\left[\sqrt[3]{64} =\right] 4$ or for ½ **oe**	Accept $4^3 = 64$ for B1
	(b)		4.68×10^5 final answer	**3**	**B2** for 468 000 or answer 4.7×10^5 or **B1** for 430 000 or 43×10^4 or 38 000 or 0.38×10^5 **seen** **M1** for figs 468 **oe** in final answer	

OCR GSCE – Monday 12 November 2018 – Paper 6 (Calculator) Higher Tier

23.

3			1.3×10^{14}	**5**	**B4** for 1.30×10^{14} or $1.29[6\ldots] \times 10^{14}$ or 130 000 000 000 000 as final answers or **B3** for 1.3×10^n $(n \neq 0)$ or $1.29[6\ldots] \times 10^{14}$ written in full or **M3** for $3500 \div (2.7 \times 10^{-11})$ oe or **B2** for $1.29[6...] \times 10^n$ $(n \neq 0)$ or figs 13 OR **M1** for figs 35 ÷ figs 27 soi by figs 129[6…] **B1** for 3500 or 2.7×10^{-14} oe or 3.5×10^3 seen	For 5 marks and M marks, condone use of correctly rounded values in correct calculations E.g. 129 600 000 000 000 0.000 000 000 000 027

OCR GSCE – Thursday 7 June 2018 – Paper 5 (Non - Calculator) Higher Tier

24.

1	**(a)**		$1\frac{9}{40}$	**3**	Mark final answer **M2** for $\frac{24[k]+25[k]}{40[k]}$ or better (k is positive integer) or **M1** for two equivalent fractions with common denominator of 40[k] attempted with one numerator correct If **0** scored, **SC1** for answer 1.225	Could be separate fractions M2 soi by $\frac{49[k]}{40[k]}$ oe Could be seen in 2 different fractions without addition
	(b)		4.84×10^4	**3**	**M2** for figs 484 in final answer or **B1** for 50 000 or 50×10^3 **seen** or for 1600 or 0.16×10^4 **seen**	Allow M2 if correct answer oe seen in working

OCR GSCE – Wednesday 8 November 2017 – Paper 6 (Calculator) Higher Tier

25.

5	**(a)**		42	**2**	**M1** for $\frac{1.47\times10^{7}}{3.5\times10^{5}}$ oe If 0 scored **SC1** for figs 42 in answer	Eg. $\frac{14\,700\,000}{350\,000}$
	(b)		$4.2[3\ldots] \times 10^{9}$	**3**	**B2** for 4 233 600 000 oe as answer or **M1** for *their* $1.47 \times 10^{7} \times 288$ If 0 scored **SC1** for figs 423[...] in answer	Eg. $423.[36] \times 10^{7}$ *their* 1.47×10^{7} converted from info in (a)
	(c)	**(i)**	6450	**3**	**B2** for 6447 to 6448 or **M1** for $\frac{1.47\times10^{7}}{(152\times15)}$ oe or figs 6447 in answer	May be in stages. NB: 152 × 15 = 2280
		(ii)	Each machine makes the same amount of sweets or There are no breakdowns oe or Machines running at same rate oe or All machines run **for** the same time oe	**1**		

OCR GSCE – Tuesday 13 June 2017 – Paper 6 (Calculator) Higher Tier

26.

1	**a**		53 500 000	**1** **1 AO1.2**		
	b		1.02×10^{7}	**2** **2 AO1.3b**	**B1** for answer figs102	
	c		15 nfww	**4** **3 AO1.3b** **1 AO3.1d**	**B3** for 15.07 to 15.1 nfww OR **B1** for figs 637 and **M1** for $\frac{73.3\times10^{6} - \textit{their}63.7\times10^{6}}{\textit{their}63.7\times10^{6}}$ oe or $\frac{73.3\times10^{6}}{\textit{their}63.7\times10^{6}}$ oe and **M1dep** interpretation of answer to division as a percentage increase soi by answer	*their* 63.7×10^{6} can be an error from their sum, *their* (b) or one of the country populations Allow **M1M1** for (England answer) 37 (Wales answer) 2300 (Scotland answer) 1300 (NI answer) 3900 ((b) answer) 620

AQA GSCE – Thursday 4 June 2020 – Paper 2 (Calculator) Higher Tier

27.

3	5.2×10^{-4}	B1	
	Additional Guidance		

AQA GSCE – Tuesday 21 May 2019 – Paper 1 (Non - Calculator) Higher Tier

28.

5(a)	9.7×10^{-4}	B1	
	Additional Guidance		
	Condone $9.7 . 10^{-4}$ or $9.7 \cdot 10^{-4}$		B1
	Ignore zeroes before the '9' eg 00009.7×10^{-4}		B1
	$9.7 \times 10^{4-}$		B0

5(b)	300 000 and 4000 or $(10^5 \div 10^3 =) 10^2$ or $(10^5 \div 10^3 =) 100$ or $7.5 \times 10^{(1)}$ or 75×10^0 or $\frac{3 \times 10^2}{4}$ or $\frac{300}{4}$	M1	
	75	A1	
	Additional Guidance		
	If the answer is given in standard form and as 75 the student must indicate that 75 is their chosen answer or it must be the final answer given eg1 $7.5 \times 10^{(1)} = 75$ on the answer line eg2 $75 = 7.5 \times 10^{(1)}$ on the answer line		M1A1 M1A0
	$\frac{300}{4}$ or 75 from incorrect working scores zero eg1 $3 \times 10^5 = 30\,000$ and $4 \times 10^3 = 400$ and $30\,000 \div 400 = \frac{300}{4} = 75$ eg2 $\frac{30\,000}{400} = 75$		M0A0 M0A0
	For the method mark, ignore incorrect work from a correct expression eg $0.75 \times 10^2 = 7.5 \times 10^3$		M1A0
	If the student attempts two methods (simplifying the powers and attempting to convert to ordinary numbers) mark both methods and award the higher mark		

AQA GSCE – Thursday 8 November 2018 – Paper 2 (Calculator) Higher Tier

29.

12	2.85×10^6	B2	B1 correct value not in standard form eg 2 850 000 or 28.5×10^5 or 2.9×10^6
	Additional Guidance		
	Condone different spacing or commas eg 2850000 or 28,50,000		B1
	$2.85.10^6$		B1
	2.85×10^6 in working with 2.9×10^6 on answer line		B2
	2.85×10^6 in working with 3×10^6 on answer line		B2
	2.9×10^6 in working with 3×10^6 on answer line		B1
	3×10^6 only		B0
	2.85×10^6 in working with 2 850 000 on answer line		B1
	2 850 000 in working with 2 900 000 on answer line		B1
	2 900 000 only		B0
	2 850 000 in working with 2.8×10^6 on answer line		B1
	2.8×10^6 only		B0

AQA GSCE – Thursday 7 June 2018 – Paper 2 (Calculator) Higher Tier

30.

2	6×10^7	B1	
	Additional Guidance		

AQA GSCE – Thursday 2 November 2017 – Paper 1 (Non - Calculator) Higher Tier

31.

2	8×10^8	B1	

AQA GSCE – Wednesday 25 May 2017 – Paper 1 (Non - Calculator) Higher Tier

32.

13	$6.005\ 2(00) \times 10^6$	B2	B1 for their 6 005 200 written normally and correctly converted to standard form or no number written normally and answer $6.(\ldots) \times 10^6$
	Additional Guidance		
	$(6\ 500\ 200$ and $) 6.500\ 2(00) \times 10^6$		B1
	$65\ 200$ and 6.52×10^4		B1
	$10^6 \times 6.005\ 2(00)$		B2
	Correct value of 6 005 200 with no conversion to standard form		B0
	6×10^6 with no number written normally		B1

AQA GSCE – Thursday 8 June 2017 – Paper 2 (Calculator) Higher Tier

33.

11	9.56×3^{10} 9563 9.56×10^3 or 564 508 (.44) 9563 9560 with no incorrect evaluations seen	B2	B1 9.563×10^3 or 9560 or 564 508 (.44) or $5.6(450844) \times 10^5$ SC1 9.56×10^3 9563 9.56×3^{10} with no incorrect evaluations seen
	Additional Guidance		
	Allow numbers to be written in original or converted form or as a mixture for B2 or SC1		
	Incorrect evaluation seen scores a maximum of B1		

AQA GSCE – Sample Paper 1 (Non - Calculator) Higher Tier

34.

15	2.376×10^4	B2	B1 $(a =) 2.4$ or 24 000 and 240 or 23 760 or value calculated that is correctly converted to standard form

AQA GSCE – Sample Paper 2 (Calculator) Higher Tier

35.

12	1.7×10^6 or 2×10^6	B3	B2 $1.72(8) \times 10^6$ or 1.73×10^6 or 1 700 000 or 2 000 000 B1 1 728 000 or 1 730 000