Lesmahagow High School

Mathematics Department

National 5
Numeracy and Rounding

Corrective Actions

WORKSHEETS

Topic	Skills	
Rounding		
Round to decimal places	**e.g.**	25.1241 → 25.1 ***to 1 d.p.*** 34.676 → 34.68 ***to 2 d.p.***
Round to Significant Figures	**e.g.**	1276 → 1300 ***to 2 sig. figs.*** 0.06356 → 0.064 ***to 2 sig. figs.*** 37,684 → 37,700 ***to 3 sig. figs.*** 0.005832 → 0.00583 ***to 3 sig. figs.***

Lesmahagow High School

Mathematics Department

N5

Numeracy Skills

https://www.national5maths.co.uk/free-national-5-maths-2/

Numeracy Calculations

Add and Subtract positive and negative numbers

1. Calculate :

(a)	3 + (–2)	**(b)**	–3 + (–2)	**(c)**	6 – 3	**(d)**	4 + 4
(e)	–5 + 7	**(f)**	9 – 2	**(g)**	7 – 3	**(h)**	8 + 2
(i)	10 + (–5)	**(j)**	–2 + (–4)	**(k)**	12 + (–7)	**(l)**	–4 + 8
(m)	–3 + 2	**(n)**	–5 + (–8)	**(o)**	8 + (–7)	**(p)**	4 – 5

2. Calculate

(a)	20 – 30	**(b)**	70 + (–20)	**(c)**	–50 + 10	**(d)**	–30 –40
(e)	–18 + 8	**(f)**	35 – 40	**(g)**	–27 – 15	**(h)**	21 + (–37)
(i)	12 – 35	**(j)**	–13 + 49	**(k)**	15 + (–15)	**(l)**	130 – 200
(m)	–37 + 14	**(n)**	58 – 85	**(o)**	–19 –52	**(p)**	–72 + (–17)

More Percentages

1. Find: **(a)** 25% of 40 **(b)** 10% of 780 **(c)** 20% of 55

2. In a quiz there were 60 questions altogether:

Team A answered 20% of the questions correctly

Team B answered 25% of the questions correctly

Team C answered 50% of the questions correctly

How **many** questions did each team answer correctly?

3. 75% of the pupils in a school do not attend on the last day before a holiday. If there are 1244 pupils in the school, how many did attend on the last day?

4. Find the following amounts:

(a) 45% of £450 **(b)** 23% of £236 **(c)** 78% of £890

5. During a period of 55 minutes a pupil spent 15% of the time day dreaming. How many minutes is this?

6. A packet of crisps weighs 30g. Special offer packs give 40% extra free. What weight of crisps do you get in a packet now?

7. Susan was buying a new computer. She had to pay a deposit of 30%.

How much deposit would have to pay if her computer was going to cost £900?

8. In a sale, a bike which normally costs £290 is being offered with a 24% discount. How much would be paid for the bike after discount?

Fractions, Decimals and Percentages (1)

1. Calculate:

(a)	$\frac{1}{3}$ of £96	**(b)**	$\frac{1}{5}$ of 65kg	**(c)**	$\frac{1}{7}$ of £36.40
(d)	$\frac{3}{4}$ of 48cm	**(e)**	$\frac{5}{8}$ of £136	**(f)**	$\frac{7}{8}$ of 58·4g
(g)	$\frac{2}{3}$ of £15.96	**(h)**	$\frac{9}{10}$ of 45kg	**(i)**	$\frac{3}{7}$ of £10.92
(j)	$\frac{5}{6}$ of £5.10	**(k)**	$\frac{3}{8}$ of 984mm	**(l)**	$\frac{3}{4}$ of £1.08
(m)	$\frac{11}{20}$ of £2540	**(n)**	$\frac{9}{16}$ of 480tonnes	**(o)**	$\frac{5}{17}$ of 25·5kg

2. Calculate :

(a)	26% of £90	**(b)**	54% of 300g	**(c)**	13% of £45
(d)	42% of 60kg	**(e)**	17% of £10	**(f)**	21% of 85cm
(g)	27% of £64	**(h)**	5% of £340	**(i)**	65% of £880
(j)	8% of 4500g	**(k)**	80% of £250	**(l)**	94% of £360
(m)	78% of £1500	**(n)**	4% of £12	**(o)**	7% of 1200tonnes

3. Calculate each of the following rounding your answers to the nearest penny:

(a) 36% of £13.20 **(b)** 24% of £12.71 **(c)** 1% of £6.35

(d) 47% of 89p **(e)** 57% of £10.43 **(f)** 41% of 51p

(g) 12% of £18.30 **(h)** 4% of £341.20 **(i)** 5% of £834.65

(j) 81% of £3.45 **(k)** 9% of £2.57 **(l)** 34% of 88p

(m) 71% of £1.53 **(n)** 3% of £12.08 **(o)** 57% of 97p

4. Change each of the following fractions to percentages. (*Round your answer to the nearest percent when necessary*)

(a) $\frac{4}{5}$ **(b)** $\frac{3}{4}$ **(c)** $\frac{7}{25}$ **(d)** $\frac{7}{10}$ **(e)** $\frac{17}{100}$ **(f)** $\frac{19}{20}$

(g) $\frac{5}{9}$ **(h)** $\frac{3}{11}$ **(i)** $\frac{18}{25}$ **(j)** $\frac{5}{12}$ **(k)** $\frac{1}{8}$ **(l)** $\frac{8}{13}$

(m) $\frac{1}{15}$ **(n)** $\frac{3}{7}$ **(o)** $\frac{6}{31}$ **(p)** $\frac{38}{365}$ **(q)** $\frac{48}{95}$ **(r)** $\frac{6}{29}$

5. John's schedule marks are shown in the table below:

Subject	Maths	English	Tech	Science	Art	History	French
Mark	45 out of 60	64 out of 72	40 out of 65	38 out of 55	75 out of 90	27 out of 40	63 out of 95
%							

(a) **Copy** and complete the table by calculating John's "percentage mark" for each subject.(*Round each answer to the nearest percent where necessary)*.

(b) Which was John's best subject?

(c) Which was his worst?

Fractions, Decimals and Percentages (2)

1. **Increase** each of the following by 15%.

(a) £250 **(b)** 160kg **(c)** 25cm **(d)** £36

(e) 2100g **(f)** 210°C **(g)** £8 **(h)** £3500

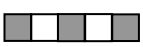
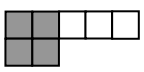
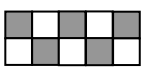
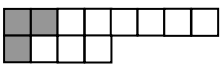
2. **Decrease** each of the amounts in **Q1** by 20%.

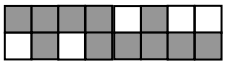
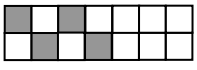
3. The nine workers in a small factory are given different percentage wage rises dependant upon their length of service. The table below represents their weekly wages.

Copy and complete the table below:

Name	Old Wage	% Increase	Increase	New Wage
John Hughes	£230	4%	£9.20	£239.20
Steven Higgins	£168	6%		
Susan Marshal	£210	4%		
Stewart Aitken	£145	2%		
Pamela Grant	£360	3·5%		
Neil McShane	£225	6%		
James Mackie	£235	8%		
Lorna Graham	£210	4·5%		
Pat Lavery	£468	5%		

4. For each diagram below, write down **(i)** the fraction shaded; **(ii)** the percentage shaded .

(a)  **(b)**  **(c)**  **(d)** 

(e)  **(f)**  **(g)** 

5. Calculate the fraction and percentage of vowels in each word below.

(a) Mathematics **(b)** Equations **(c)** Algebra

6. **(a)** In a class of thirty pupils, 6 were absent. Calculate the percentage absent.

(b) A machine produces 300 heating elements in a morning. Six are found to be defective.

What percentage of the elements are defective?

(c) A small farm has 160 sheep. During a severe storm the farmer loses 8 sheep.

What percentage of the sheep got lost?

Fractions, Decimals and Percentages (3)

1. **VAT** is charged at 20%. Calculate the VAT on each item below.

(a) A stereo costing £230 **(b)** A fridge costing £148

(c) A cooker costing £456 **(d)** A watch costing £68

(e) A computer costing £650 **(f)** A gold ring costing £134

2. Find the total cost of each item in Q1 after the VAT has been added.

3. A man places £2300 in a savings account which has an annual interest rate of 4%.

(a) How much interest will he earn in the first year ?

(b) Assuming he does not touch his money, how much does he now have in the bank at the beginning of year two?

(c) Hence calculate the interest he will get at the end of year two.

4. A woman places £22100 in a Post Office savings account which has an annual interest rate of 5%.

(a) How much interest will she earn in the first year?

(b) Assuming she does not touch her money, how much does she now have in the bank at the beginning of year two?

(c) Hence calculate the interest she will get at the end of year two.

5. Steven places £800 in a Building Society at an annual interest rate of 3%.

How much will he have in his account after two years?

6. Susan invests £800 in a Building Society at an annual interest rate of 6%.

How much will she have in her account after two years?

Fractions

1. Find: **(a)** $\frac{1}{2}$ of £30 **(b)** $\frac{1}{3}$ of £96 **(c)** $\frac{1}{4}$ of £20

(d) $\frac{1}{5}$ of £230 **(e)** $\frac{1}{10}$ of £324 **(f)** $\frac{1}{6}$ of £36

2. Work out the answers to:

(a) $\frac{1}{2}$ of 420cm **(b)** $\frac{1}{4}$ of 3320 ml **(c)** $\frac{1}{6}$ of £564

3. A piece of wood is 8·4m long. $\frac{1}{3}$ of it is used.

How many metres are used?

4. On board a ship there has to be someone 'on watch' all the time. Each person is on duty for $\frac{1}{4}$ of a day.

How many hours is this?

5. In the cinema there are 230 people. $\frac{1}{10}$ of them are children.

How many adults are there?

6. There are 8 people in a rowing team. $\frac{1}{4}$ of them are girls? How many **boys** are there in the team?

7. In a basket there are 24 Easter eggs. $\frac{1}{4}$ of them are milk chocolate, $\frac{1}{3}$ of them are dark chocolate and the rest are white chocolate.

How many white chocolate eggs are there?

8. Anne is going to be 16 on her next birthday. $\frac{1}{8}$ of the candles on her cake are green, $\frac{1}{2}$ are red and the rest white.

How many white candles are there?

9. In Killiber High School there are 252 pupils in third year. On the last day of term only $\frac{1}{7}$ of them were in school.

(a) How **many** pupils were at school?

(b) How many were absent?

10. A film lasts for 2hrs and 30mins. After I had watched $\frac{1}{5}$ of it I fell asleep. How many **minutes** of the film did I see before I fell asleep?

11. On $\frac{1}{6}$ of the days in June this year there was some rain.

On how many days was it **completely dry**?

12. In the course of a day most of us spend $\frac{1}{3}$ of it asleep.

For how many hours each day are we awake?

More fractions

1. Find the following:

(a) $\frac{3}{4}$ of 256 m **(b)** $\frac{2}{5}$ of £400 **(c)** $\frac{5}{8}$ of £308

2. There are 48 sweets in a packet. $\frac{3}{4}$ of them are citrus flavours.

How many citrus sweets are there in the packet?

3. In a class of 24 pupils $\frac{7}{8}$ of them are present.

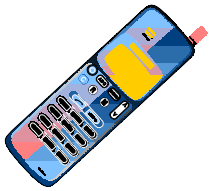
(a) How many pupils are present?

(b) How many are absent?

4. In a school there are 1450 pupils. $\frac{4}{5}$ of them bring a mobilephone to school.

(a) How many pupils bring a mobile phone?

(b) How many do not bring a phone with them?



5. In a box of 36 chocolates, $\frac{4}{9}$ of them are milk chocolate, $\frac{1}{3}$ of them are white chocolate and the rest are dark chocolate.

(a) How many are milk chocolate?

(b) How many are white chocolate?

(c) How many are dark chocolate?

6. There are 100 pencils in a box. $\frac{3}{5}$ of them are plain. $\frac{3}{8}$ of the remainder have rubber tips and the rest are coloured.

(a) How many plain pencils are there?

(b) How many rubber-tipped pencils are there?

(c) How many coloured pencils are there?

7. $\frac{5}{7}$ of the cars in a car park were grey. If there were 560 cars altogether, how many of them were grey?

8. Daniel was building a jigsaw which had 600 pieces in it. If he had fitted in $\frac{5}{12}$ of the pieces, how many had he **still to fit**?

9. In a box of 36 coloured pencils, $\frac{2}{9}$ of them were shades of red. How many were **not**shades of red?

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N5

Rounding

https://www.national5maths.co.uk/free-national-5-maths-2/

Rounding

ROUNDING – revision and 2 decimal places

1. Round to the **nearest unit**:

(a)	2·9	**(b)**	5·6	**(c)**	1·4	**(d)**	8·3
(e)	7·7	**(f)**	3·1	**(g)**	4·5	**(h)**	9·2
(i)	2·12	**(j)**	7·93	**(k)**	6·25	**(l)**	1·09
(m)	4·76	**(n)**	8·45	**(o)**	3·93	**(p)**	5·55

3. Round to the **nearest unit**:

(a)	12·4	**(b)**	35·1	**(c)**	27·6	**(d)**	82·7
(e)	17·9	**(f)**	38·2	**(g)**	36·3	**(h)**	90·2
(i)	123·1	**(j)**	563·8	**(k)**	18·5	**(l)**	343·3
(m)	44·87	**(n)**	218·34	**(o)**	73·82	**(p)**	119·18

3. Round to the **nearest ten**:

(a)	23	**(b)**	74	**(c)**	68	**(d)**	85
(e)	57	**(f)**	31	**(g)**	15	**(h)**	94
(i)	62	**(j)**	75	**(k)**	16	**(l)**	49
(m)	33	**(n)**	82	**(o)**	71	**(p)**	34

4. Round to the **nearest ten**:

(a)	213	**(b)**	128	**(c)**	761	**(d)**	344
(e)	275	**(f)**	119	**(g)**	515	**(h)**	202
(i)	112	**(j)**	563	**(k)**	136	**(l)**	499
(m)	431	**(n)**	184	**(o)**	256	**(p)**	314

5. Round to the **nearest hundred**:

(a)	270	**(b)**	150	**(c)**	340	**(d)**	830
(e)	725	**(f)**	384	**(g)**	451	**(h)**	919

(i)	111	**(j)**	252	**(k)**	666	**(l)**	715
(m)	545	**(n)**	186	**(o)**	237	**(p)**	809
(q)	1265	**(r)**	1354	**(s)**	2136	**(t)**	3456
(u)	1881	**(v)**	1999	**(w)**	6543	**(x)**	8129

6. Round each number to **i. the nearest ten**

ii. **the nearest hundred**

iii. **the nearest thousand**:

(a)	2911	**(b)**	5667	**(c)**	1459	**(d)**	8321
(e)	7774	**(f)**	3103	**(g)**	4518	**(h)**	9286
(i)	2125	**(j)**	7932	**(k)**	6253	**(l)**	1094
(m)	4768	**(n)**	8451	**(o)**	3939	**(p)**	5999

7. Round the following numbers to 1 decimal place:

(a)	0·31	**(b)**	0·29	**(c)**	0·56	**(d)**	0·61
(e)	0·22	**(f)**	0·18	**(g)**	0·37	**(h)**	0·26
(i)	0·94	**(j)**	0·43	**(k)**	0·75	**(l)**	0·68
(m)	0·86	**(n)**	0·24	**(o)**	0·73	**(p)**	0·99

8. Round the following numbers to 1 decimal place:

(a)	2·91	**(b)**	5·68	**(c)**	1·47	**(d)**	8·33
(e)	7·75	**(f)**	3·11	**(g)**	4·52	**(h)**	9·26
(i)	2·12	**(j)**	7·93	**(k)**	6·25	**(l)**	1·09
(m)	4·76	**(n)**	8·45	**(o)**	3·93	**(p)**	5·55

9. Round the following numbers to 1 decimal place:

(a)	62·035	**(b)**	15·619	**(c)**	31·475	**(d)**	18·303
(e)	47·275	**(f)**	0·123	**(g)**	10·542	**(h)**	39·626
(i)	20·818	**(j)**	0·2938	**(k)**	61·465	**(l)**	1·0094

(m) 49·869 **(n)** 8·4011 **(o)** 17·995 **(p)** 0.·987

10. Round the following numbers to 2 decimal places:

(a)	2·915	**(b)**	5·663	**(c)**	1·408	**(d)**	8·321
(e)	7·761	**(f)**	3·115	**(g)**	4·526	**(h)**	9·212
(i)	2·128	**(j)**	7·937	**(k)**	6·254	**(l)**	1·092
(m)	4·763	**(n)**	8·451	**(o)**	3·938	**(p)**	5·503

11. Calculate the following and give your answer correct to 2 decimal places.

(a) £37 is shared among 6 people. How much does each person get?

(b) Eggs cost £1.90 a dozen. How much does it cost for one egg?

(c) Jan can run 90 m in 96 second. How long does it take her to run 1 m?

(d) Karen drives 400 miles in 7 hours. How far does she drive in 1 hour?

(e) A printer can print 377 pages in 1 hour. How many does it print in 1 minute

(f) Granny Smith left £967 in her will, to be shared among her 7 grandchildren.

How much will each receive?

(g) A photographic company charges £3.99 to develop 24 photographs.

How much does it cost for 1 photograph?

(h) Chris took 3 ½ minutes to complete 4 laps of the go-cart racing track.

How long did it take him for 1 lap?

(i) 15 videos on a shelf take up 44 centimetres of shelf space.

How much space does one video take up?

(j) It takes me 44 minutes to cycle 16 km. How far can I cycle in 1 minute?

ROUNDING – Significant figures

1. Round to **1** significant figure:

(a)	23	**(b)**	5·5	**(c)**	78	**(d)**	31
(e)	125	**(f)**	309	**(g)**	291	**(h)**	843.6
(i)	7646	**(j)**	1928	**(k)**	8003	**(l)**	5192·7
(m)	10·9	**(n)**	556·2	**(o)**	3·98	**(p)**	12345
(q)	1·01	**(e)**	93	**(s)**	0·86	**(t)**	606

2. Round to **2** significant figures:

(a)	8·72	**(b)**	92·8	**(c)**	0·186	**(d)**	679
(e)	2·112	**(f)**	6·463	**(g)**	31·4	**(h)**	25·8
(i)	24·27	**(j)**	18·76	**(k)**	6397	**(l)**	4·99
(m)	0·0526	**(n)**	0·00613	**(o)**	0·08702	**(p)**	13814
(q)	2·456	**(r)**	45192	**(s)**	29·302	**(t)**	0·756

3. Calculate and give your answer correct to **2** significant figures

(a)	$5{\cdot}16 \times 22{\cdot}7$	**(b)**	$27{\cdot}3 \div 6{\cdot}84$	**(c)**	$3{\cdot}14 \times 9^2$
(d)	$25{\cdot}8 \times 1{\cdot}76 \div 1{\cdot}1$	**(e)**	$13{\cdot}2 \times 3{\cdot}72$	**(f)**	$25{\cdot}8 \div 52{\cdot}9$
(g)	$1{\cdot}14^2 \times 2{\cdot}92$	**(h)**	$5{\cdot}2 \times 0{\cdot}.49 \div 30{\cdot}3$	**(i)**	$234 \div (0{\cdot}028 \times 33)$
(j)	$(0{\cdot}08 \times 25^2) \div 3$	**(k)**	$(1{\cdot}05)^2 \times 455$	**(l)**	$3{\cdot}14 \times 12^2 \div 7$

FURTHER ROUNDING

1. Re-write these sentences giving the measurement to the nearest unit:

(a) Ahmed measured the length of his lounge to be 4·3 metres.

(b) The height of the Eiffel Tower is 323·75 metres high.

(c) The tallest man in the world is 289·5 centimetres tall.

(d) The longest fingernails ever grown measured 484·34 cm.

SIGNIFICANT FIGURES

1. Round to **1** significant figure :

(a)	23	**(b)**	5.5	**(c)**	78	**(d)**	31
(e)	125	**(f)**	309	**(g)**	291	**(h)**	843.6
(i)	7646	**(j)**	1928	**(k)**	8003	**(l)**	5192.7
(m)	10·9	**(n)**	556·2	**(o)**	3·98	**(p)**	12345
(q)	1·01	**(r)**	93	**(s)**	0·86	**(t)**	606

2. Round to **2** significant figures :

(a)	8·72	**(b)**	92·8	**(c)**	0·186	**(d)**	679
(e)	2·112	**(f)**	6·463	**(g)**	31·4	**(h)**	25·8
(i)	24·27	**(j)**	18·76	**(k)**	6397	**(l)**	4·99
(m)	0·0526	**(n)**	0·00613	**(o)**	0·08702	**(p)**	13814
(q)	2·456	**(r)**	45192	**(s)**	29·302	**(t)**	0·756

3. Round to **3** significant figures :

(a)	49·32	**(b)**	2·345	**(c)**	0·5928	**(d)**	4765
(e)	6·081	**(f)**	24180	**(g)**	0·06281	**(h)**	29·514
(i)	0·0094682	**(j)**	56248	**(k)**	0·09803	**(l)**	24·47
(m)	28·32	**(n)**	2463	**(o)**	3174	**(p)**	30·03

(q) 2·6759 **(r)** 3085 **(s)** 2·007 **(t)** 0·0003175

4. Round 248382 correct to

(a) 4 sig. figs **(b)** 3 sig. figs **(c)** 2 sig. figs **(d)** 1 sig. fig

5. Round 0·0286016 correct to

(a) 4 sig. figs **(b)** 3 sig. figs **(c)** 2 sig. figs **(d)** 1 sig. fig

6. Calculate and give your answer correct to **2** significant figures

(a) $5{\cdot}16 \times 22{\cdot}7$ **(b)** $27{\cdot}3 \div 6{\cdot}84$ **(c)** $3{\cdot}14 \times 9^2$

(d) $25{\cdot}8 \times 1{\cdot}76 \div 1{\cdot}1$ **(e)** $13{\cdot}2 \times 3{\cdot}72$ **(f)** $25{\cdot}8 \div 52{\cdot}9$

(g) $1{\cdot}14^2 \times 2{\cdot}92$ **(h)** $5{\cdot}2 \times 0{\cdot}49 \div 30{\cdot}3$ **(i)** $234 \div (0{\cdot}028 \times 33)$

(j) $(0{\cdot}08 \times 25^2) \div 3$ **(k)** $(1{\cdot}05)^2 \times 455$ **(l)** $3{\cdot}14 \times 12^2 \div 7$

7. Calculate and give your answer correct to 3 significant figures

(a) $2{\cdot}29 \times 58{\cdot}1$ **(b)** $325{\cdot}9 \div 68{\cdot}2$ **(c)** $3{\cdot}14 \times 18$

(d) $0{\cdot}08 \times 12349$ **(e)** $3{\cdot}7^2 \div 1{\cdot}56$ **(f)** $1001 \div 3$

(g) $12{\cdot}7 \times (1{\cdot}24 + 0{\cdot}321)$ **(h)** $0{\cdot}13 \times 99 \div 0{\cdot}49$ **(i)** $0{\cdot}77 \div (4{\cdot}2 \times 1{\cdot}9)$

(j) $(26{\cdot}9 - 1{\cdot}85) \times 13$ **(k)** $60 \div 29$ **(l)** $11 \times 2{\cdot}6 \div 30$

8. The speed of light is approximately 8×10^5 times faster than the speed of sound in air.

If the speed of sound in air is 372 metres per second, calculate the speed of light.

Give your answer in **scientific notation correct to 3 significant figures**.

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N5

Solutions

https://www.national5maths.co.uk/free-national-5-maths-2/

CALCULATIONS USING SCIENTIFIC NOTATION

1. **(a)** The speed of light is 300 000 000 metres per second.

(b) The diameter of the earth is 12 680 kilometres.

(c) A Building Society has £2 150 000 000 in its funds.

(d) The radius of the orbit of an electron is 0·000 000 05 mm.

(e) A space probe reached a speed of 149 000 m.p.h.

(f) The earth weighs 6 600 000 000 000 000 000 000 tonnes.

(g) A film of oil is 0·000 000 08 mm thick.

2. **(a)** $8{\cdot}8 \times 10^{11}$ **(b)** $6{\cdot}93 \times 10^{15}$ **(c)** $4{\cdot}14 \times 10^{7}$ **(d)** $1{\cdot}365 \times 10^{19}$

(e) $6{\cdot}86 \times 10^{24}$ **(f)** $5{\cdot}52 \times 10^{12}$ **(g)** $1{\cdot}19 \times 10^{7}$ **(h)** $6{\cdot}24 \times 10$

(i) $6{\cdot}351 \times 10^{-4}$ **(j)** $9{\cdot}09 \times 10^{-38}$ **(k)** $5{\cdot}5 \times 10^{6}$ **(l)** $6{\cdot}3 \times 10^{-10}$

(m) $7{\cdot}5 \times 10^{15}$ **(n)** $9{\cdot}3 \times 10^{5}$ **(o)** $1{\cdot}3 \times 10^{7}$ **(p)** $2{\cdot}5 \times 10^{12}$

(q) $1{\cdot}7 \times 10^{-9}$ **(r)** $1{\cdot}4 \times 10^{-33}$ **(s)** $8{\cdot}9 \times 10^{8}$ **(t)** $1{\cdot}05 \times 10^{19}$

(u) $3{\cdot}2 \times 10^{4}$ **(v)** $1{\cdot}39 \times 10^{5}$ **(w)** 9×10^{-6}

3. **(a)** $6{\cdot}66 \times 10^{8}$ **(b)** $4{\cdot}0506 \times 10^{4}$ **(c)** $2{\cdot}94336 \times 10^{9}$

(d) 2×10^{7} **(e)** 3×10^{30}

4. **(a)** $8{\cdot}7 \times 10^{-1}$ grams. **(b)** $2{\cdot}52 \times 10^{7}$ **(c)** $1{\cdot}943 \times 10^{8}$

(d) $1{\cdot}794 \times 10^{10}$ **(e)** £$2{\cdot}016 \times 10^{7}$ **(f)** £$1{\cdot}896 \times 10^{6}$

(g) $2{\cdot}592 \times 10^{6}$ **(h)** $5{\cdot}229 \times 10^{6}$ **(i)** $1{\cdot}869 \times 10^{9}$

SIGNIFICANT FIGURES

1. **(a)** 20 **(b)** 6 **(c)** 80 **(d)** 30 **(e)** 100 **(f)** 300

(g) 300 **(h)** 800 **(i)** 8000 **(j)** 2000 **(k)** 8000 **(l)** 5000

(m) 11 **(n)** 600 **(o)** 4 **(p)** 10000 **(q)** 1 **(r)** 90

(s) 0·9 **(t)** 600

2. **(a)** 8·7 **(b)** 93 **(c)** 0·19 **(d)** 680 **(e)** 2·1 **(f)** 6·5

(g) 31 **(h)** 26 **(i)** 24 **(j)** 19 **(k)** 6400 **(l)** 5·0

(m) 0·053 **(n)** 0·0061 **(o)** 0·087 **(p)** 14000 **(q)** 2·5 **(r)** 45000

	(s)	29	**(t)**	0·76			
3.	**(a)**	49·3	**(b)**	2·35	**(c)**	0·593	**(d)**	4770
	(e)	6·08	**(f)**	24200	**(g)**	0·0628	**(h)**	29·5
	(i)	0·00947	**(j)**	56200	**(k)**	0·0980	**(l)**	24·5
	(m)	28·3	**(n)**	2460	**(o)**	3170	**(p)**	30·0
	(q)	2·68	**(r)**	3090	**(s)**	2·01	**(t)**	0·000318
4.	**(a)**	248400	**(b)**	248000	**(c)**	250000	**(d)**	200000
5.	**(a)**	0·02860	**(b)**	0·0286	**(c)**	0·029	**(d)**	0·03
6.	**(a)**	120	**(b)**	4·0	**(c)**	250	**(d)**	41
	(e)	49	**(f)**	0·49	**(g)**	3·8	**(h)**	0·084
	(i)	250	**(j)**	17	**(k)**	500	**(l)**	65
7.	**(a)**	133	**(b)**	4·78	**(c)**	56·5	**(d)**	988
	(e)	8·78	**(f)**	334	**(g)**	19·8	**(h)**	26·3
	(i)	0·965	**(j)**	326	**(k)**	2·07	**(l)**	0·0965

8. $2{\cdot}98 \times 10^8$