Armadale Academy

S1 Maths Revision Booklet

3rd Level Core

How to use this booklet:

There are questions on each topic that has been covered so far in the S1 mathematics course.

Next to each set of questions is a QR code which you can scan with your phone.

These QR codes will take you videos with explanations of how to answer the questions if you are unsure.

1. Number Work

Four Operations with Whole Numbers and Decimals

1. Use an appropriate strategy to calculate:

a) 67 + 18	**b)** 27 + 21	**c)** 123 + 564	**d)** 2385 + 584
e) 39104 + 22934	**f)** 81 – 43	**g)** 557 – 319	**h)** 982 – 93
i) 9000 – 1182	**j)** 48832 – 14501	**k)** 432 + 217 – 119	**l)** 5000 – 231 + 190
m) 6.28 + 3.1	**n)** 9.98 – 4.56	**o)** 7 – 4.56	**p)** 15.3 + 21.46

Column Addition

Partitioning Addition

2. At a football match there are 2942 Rovers fans and 9381 City fans.

How many more fans did City have?

Empty Number Line Addition

3. This table shows the lengths of three rivers.

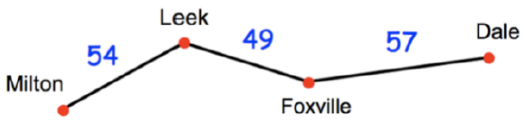
How much longer is the Nile than the combined lengths of the other two rivers?

River	Length in kilometres
Nile	6,853
Thames	346
Mississippi	3,734

Column Subtraction

Partitioning Subtraction

4. The distances, in kilometres, between four towns are shown on the map.



a) Work out the distance between Leek and Dale.
b) Work out the distance between Milton and Dale

Empty Number Line Subtraction

5. Complete the calcuations to find the missing digits:

a)

$$\begin{array}{r} 4\,\square \\ +\ \square\,4 \\ \hline 7\,2 \end{array}$$

b)

$$\begin{array}{r} 5\,\square\,\square \\ +\ \square\,7\,1 \\ \hline 9\,3\,4 \end{array}$$

c)

$$\begin{array}{r} 5\,4\,7 \\ -\ 1\,\square\,\square \\ \hline \square\,6\,9 \end{array}$$

6. Use an appropriate strategy to calculate:

a) 79 × 8	**b)** 32 × 9	**c)** 902 × 6	**d)** 1236 × 8
e) 336 ÷ 8	**f)** 657 ÷ 9	**g)** 1382 ÷ 4	**h)** 1273 ÷ 6
i) 7.8 × 5	**j)** 19.82 ÷ 4	**k)** 0.03 × 7	**l)** 0.021 ÷ 7

Grid Method Multiplication

Column Multiplication

7. How many days are there in 35 weeks?

8. At a wedding, there are 16 tables. 15 tables seat 6 guests.

1 table will seat 8 guests.

Work out the total number of chairs needed.

Short Division

9. Leanne works in a cinema.

She is paid £7.25 per hour for the first 90 hours she works each month. Leanne is paid an overtime rate of £9 per hour for any additional hours. In September she works 138 hours.

Work out how much Leanne is paid.

10. A school has 5 year groups and 835 students in total. Each year group has an equal number of students.

How many students are in each year group?

11. Leah bought a new car costing £18,000. She paid a deposit of £2,000.

Leah paid the rest of the money over 50 equal monthly payments.

How much was each monthly payment?

12. Sally is paid £8 per hour.

In one week she is paid £264.

How many hours did Sally work?

13. Use an appropriate strategy to calculate:

a) 79 × 13	**b)** 32 × 29	**c)** 902 × 46	**d)** 1236 × 85
e) 288 ÷ 18	**f)** 966 ÷ 23	**g)** 2352 ÷ 56	**h)** 7410 ÷ 95

Long Multiplication (Column)

Long Division

14. Felicity spends 25 minutes reading every day.

How long does she spend reading during the month of May?

15. The product of Jack's age and Florence's age is 266. Jack is 14 years old. How old is Florence?

16. A rugby team brought 18 coaches of supporters to a cup match. Each coach holds 53 passengers.

How many supporters are brought to the cup match by the 18 coaches?

17. Jenny bought a motorbike.

She paid a deposit of £345 and 36 monthly payments of £44 At the end of the payments, she sold the motorbike for £1400. How much did it cost Jenny in total?

18. A theatre has 28 seats in each row. There are 1036 seats in total. How many rows are there?

Multiplying and Dividing by 10, 100, 1000

1. Calculate:

a) 79 × 10	**b)** 324 × 1000	**c)** 9.2 × 100	**d)** 12.36 × 1000
e) 2800 ÷ 100	**f)** 966 ÷ 10	**g)** 235 200 ÷ 1000	**h)** 741 ÷ 1000

Multiplying and Dividing by 10, 100 and 1000

2. Calculate:

a) 79 × 40	**b)** 324 × 8000	**c)** 9.2 × 300	**d)** 12.36 × 7000
e) 2800 ÷ 400	**f)** 966 ÷ 20	**g)** 235 200 ÷ 8000	**h)** 741 ÷ 3000

Multiplying and Dividing by Multiples of 10, 100 and 1000

Order of Operations

1. Calculate:

   a) $7 + 2 \times 3$ b) $8 - 2 \times 3$ c) $9 \times (9 + 3)$ d) $100 - 6 + 2 \times 3$

   e) $(4 + 2)^2$ f) $7 \times (8 + 2)^2$ g) $\sqrt{4} + (3^2 - 5)$ h) $11 + 11 - 6^2 \div 2$

Order of Operations (note: Parentheses means Brackets!

2. Copy out and insert brackets in each equation to make them correct:

   a) $10 \times 2 + 6 = 80$ b) $5 + 5 \div 5 = 2$ c) $2 \times 7 + 1 \times 3 = 48$ d) $9 + 3^2 \times 10 \div 2 = 90$

3. Using the numbers 2, 3 and 4 and the operations +, – and ×, create as many calculations with different answers as you can.

4. Can you spot any mistakes?

Work out $9 + 4 \times 3 + 2$

$= 13 \times 3 + 2$

$= 39 + 2$

$= 41$

Rounding to decimal places

Rounding

Question 1: Round to one decimal place

(a) 5.191 (b) 8.246 (c) 10.087 (d) 39.555 (e) 0.831

(f) 93.2941 (g) 38.3152 (h) 7.26229 (i) 0.54868696

Question 2: Round to two decimal places

(a) 3.487 (b) 2.613 (c) 1.984 (d) 10.046 (e) 8.155

(f) 19.367 (g) 3.141 (h) 6.0698 (i) 4.26317 (j) 93.46197

Question 3: Round to three decimal places

(a) 0.0346 (b) 6.7568 (c) 4.2251 (d) 1.7583

(e) 40.48546 (f) 128.01891 (g) 0.5059802 (h) 384.456094

2. Multiples, Factors and Primes

Multiples and LCM

Multiples and LCM

Question 1: (a) Write down the first ten multiples of 2.
(b) Write down the first ten multiples of 3.
(c) List the first three common multiples of 2 and 3.

Question 2: (a) Write down the first ten multiples of 4.
(b) Write down the first ten multiples of 5.
(c) List the first three common multiples of 4 and 5.

Question 3: Write down three common multiples of each of these pairs of numbers.

(a) 2 and 5 (b) 3 and 4 (c) 4 and 6 (d) 10 and 15

(e) 20 and 30 (f) 3 and 5 (g) 6 and 9 (h) 6 and 12

Question 4: (a) Write down the first ten multiples of 5.
(b) Write down the first ten multiples of 8.
(c) Find the lowest common multiple (LCM) of 5 and 8.

Question 5: (a) Write down the first ten multiples of 6.
(b) Write down the first ten multiples of 8.
(c) Find the lowest common multiple (LCM) of 6 and 8.

Question 6: Find the lowest common multiple (LCM) of each of these pairs of numbers.

(a) 5 and 6	(b) 2 and 7	(c) 3 and 8	(d) 4 and 10
(e) 9 and 4	(f) 6 and 7	(g) 6 and 8	(h) 9 and 12
(i) 15 and 40	(j) 12 and 20	(k) 13 and 4	(l) 18 and 6
(m) 25 and 35	(n) 22 and 33	(o) 16 and 24	(p) 20 and 28

Factors and HCF

Factors and HCF

Question 1: (a) List all the factors of 10
(b) List all the factors of 15
(c) Write down all the common factors of 10 and 15.

Question 2: (a) List all the factors of 12
(b) List all the factors of 18
(c) Write down all the common factors of 12 and 18.

Question 3: Write down all the common factors of each of these pairs of numbers.

(a) 6 and 8	(b) 15 and 20	(c) 9 and 15	(d) 7 and 14
(e) 30 and 40	(f) 21 and 27	(g) 18 and 30	(h) 16 and 24

Question 4: (a) List all the factors of 14
(b) List all the factors of 21
(c) Find the highest common factor (HCF) of 14 and 21.

Question 5: (a) List all the factors of 24
(b) List all the factors of 36
(c) Find the highest common factor (HCF) of 24 and 36.

Question 6: Find the highest common factor (HCF) of each of these pairs of numbers.

(a) 4 and 14	(b) 6 and 9	(c) 9 and 21	(d) 8 and 12
(e) 6 and 15	(f) 10 and 17	(g) 30 and 45	(h) 40 and 60
(i) 28 and 63	(j) 24 and 36	(k) 16 and 28	(l) 18 and 45
(m) 150 and 200	(n) 12 and 54	(o) 90 and 270	(p) 39 and 65

Prime Numbers

Prime Numbers

Question 1: List the first ten prime numbers

Question 2: Are the numbers below, **prime** or **not prime**?

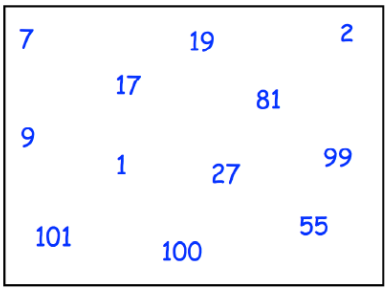
(a) 5 (b) 9 (c) 10 (d) 11 (e) 13 (f) 15

(g) 19 (h) 21 (i) 22 (j) 30 (k) 31 (l) 44

(m) 49 (n) 29 (o) 35 (p) 1 (q) 39 (r) 27

Question 3: From the box, choose:

(a) the smallest prime number
(b) a prime number that is greater than 10
(c) an even prime number
(d) the largest prime number
(e) three numbers that are not prime



Prime Factorisation

Question 4: Write each number as a product of its prime factors.

(a) 10 (b) 12 (c) 20 (d) 18 (e) 16 (f) 30 (g) 100

(h) 26 (i) 24 (j) 27 (k) 42 (l) 33 (m) 38 (n) 64

3. Integers

Adding and Subtracting negatives

Adding and Subtracting

(a) 11 – 15 (b) −9 + 5 (c) −4 – 8 (d) −4 + −3

(e) −9 – +4 (f) 10 – −3 (g) 7 – 20 (h) −2 – −5

(i) 12 + −7 (j) −4 – −1 (k) −9 + −8 (l) 8 – 13

(m) 6 – −11 (n) −7 – +7 (o) −6 – 5 (p) −20 + −3

(q) −9 – −15 (r) −8 + 25 (s) 31 – 50 (t) −30 – −16

(u) −41 – 14 (v) – 5 – +23 (w) −16 + −15 (x) 40 – −40

(y) −18 – −27 (z) −52 + 90

Multiplying and Dividing Negatives

Multiplying and Dividing

(a) −9 × −5 (b) −32 ÷ 8 (c) 66 ÷ −6 (d) 2 × −12

(e) −24 ÷ −3 (f) −12 × 7 (g) −54 ÷ 6 (h) −16 × −2

(i) 8 × −6 (j) −7 × −6 (k) 40 ÷ −8 (l) 56 ÷ −7

(m) −81 ÷ −9 (n) −14 × −5 (o) 10 × −11 (p) −65 ÷ 5

4. Fractions

Adding and Subtracting

Question 1: Work out the following additions and subtractions.
Give your answers as simplified fractions.

Adding and Subtracting

(a) $\frac{2}{5}+\frac{1}{2}$ (b) $\frac{2}{7}+\frac{1}{2}$ (c) $\frac{1}{3}+\frac{1}{2}$ (d) $\frac{4}{5}-\frac{2}{3}$

(e) $\frac{8}{9}-\frac{1}{3}$ (f) $\frac{2}{3}+\frac{1}{6}$ (g) $\frac{3}{10}+\frac{2}{5}$ (h) $\frac{3}{8}+\frac{1}{4}$

(i) $\frac{7}{15}-\frac{1}{5}$ (j) $\frac{3}{4}-\frac{2}{5}$ (k) $\frac{3}{10}+\frac{3}{8}$ (l) $\frac{2}{5}+\frac{4}{7}$

(m) $\frac{11}{15}-\frac{1}{6}$ (n) $\frac{5}{11}+\frac{1}{4}$ (o) $\frac{3}{14}+\frac{1}{3}$ (p) $\frac{11}{13}-\frac{1}{2}$

Converting between improper fractions and mixed numbers

Converting

Question 1: Change these improper fractions into mixed numbers

(a) $\frac{7}{3}$ (b) $\frac{7}{5}$ (c) $\frac{5}{2}$ (d) $\frac{8}{7}$ (e) $\frac{5}{3}$

(f) $\frac{10}{3}$ (g) $\frac{23}{2}$ (h) $\frac{11}{4}$ (i) $\frac{11}{8}$ (j) $\frac{9}{4}$

Question 2: Change these mixed numbers into improper fractions

(a) $2\frac{1}{5}$ (b) $3\frac{1}{2}$ (c) $1\frac{3}{4}$ (d) $3\frac{2}{3}$ (e) $1\frac{2}{5}$

(f) $2\frac{4}{7}$ (g) $1\frac{1}{3}$ (h) $2\frac{3}{10}$ (i) $4\frac{3}{4}$ (j) $1\frac{7}{12}$

5. Converting Fractions, Decimals and Percentages

Complete the tables below

FDP

(a)

Fraction	Decimal	Percentage
		10%
$\frac{4}{5}$		
	0.17	
$\frac{3}{20}$		

(b)

Fraction	Decimal	Percentage
	0.11	
$\frac{9}{20}$		
		68%
$\frac{3}{8}$		

(c)

Fraction	Decimal	Percentage
$\frac{2}{3}$		
	0.003	
		10.5%
$\frac{9}{80}$		

(d)

Fraction	Decimal	Percentage
	1.4	
$\frac{19}{10}$		
		265%
$\frac{11}{4}$		

Answers

1. Number Work

Four Operations with Whole Numbers and Decimals

1. a) 85 b) 48 c) 687 d) 2,969 e) 62,038 f) 38 g) 238 h) 889
   i) 7,818 j) 34,331 k) 530 l) 4,959 m) 9.38 n) 5.42 o) 2.44 p) 36.76
2. 6,439 fans
3. 2,773 km
4. a) 106 km b) 160km
5. a) **48** + **34** b) **563** + **371** c) 547 - **178** = **369**
6. a) 632 b) 288 c) 5,412 d) 9,888 e) 42 f) 73 g) 345.5 h) 212.16…
   i) 39 j) 4.955 k) 0.21 l) 0.003
7. 245 days
8. 98 chairs
9. £799.50
10. 167 pupils
11. £320
12. 33 hours
13. a) 1,027 b) 928 c) 41,492 d) 105,060 e) 16 f) 42 g) 42 h) 78
14. 775 minutes
15. 19 years old
16. 954 supporters
17. £529
18. 37 rows

Multiplying and Dividing by 10, 100, 1000

1. a) 790 b) 324,00 c) 920 d) 12,360 e) 28 f) 96.6 g) 2,352 h) 0.741
2. a) 3160 b) 2,592,000 c) 2,760 d) 86,520 e) 7 f) 48.3 g) 29.4 h) 0.247

Order of Operations

1. a) 13 b) 2 c) 108 d) 88 e) 36 f) 700 g) 6 h) 4
2. a) 10 x (2+6) = 80 b) (5+5) ÷ 5 = 2
   c) 2 x (7 + 1) x 3 = 48 d) $(9 + 3^2) \times 10 \div 2 = 90$
3. e.g. 2 + 3 - 4 = 1, 3 x 4 + 2 = 14…
4. Should be 23 as we multiply first, 9 + 12 + 2.

Rounding

1. (a) 5.2 (b) 8.2 (c) 10.1 (d) 39.6 (e) 0.8
(f) 93.3 (g) 38.3 (h) 7.3 (i) 0.5

2. (a) 3.49 (b) 2.61 (c) 1.98 (d) 10.05 (e) 8.16
(f) 19.37 (g) 3.14 (h) 6.07 (i) 4.26 (j) 93.46

3. (a) 0.035 (b) 6.757 (c) 4.225 (d) 1.758
(e) 40.485 (f) 128.019 (g) 0.506 (h) 384.456

2. Multiples, Factors and Primes

Multiples and LCM

1. a) 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. b) 3, 6, 9, 12, 15, 18, 21, 24, 27, 30. c) 6, 12, 18

2. a) 4, 8, 12, 16, 20, 24, 28, 32, 36, 40 b) 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 c) 20, 40, 60

3. a) 10, 20, 30 etc. b) 12, 24, 36 etc. c) 12, 24, 36 etc. d) 30, 60, 90 etc. e) 60, 120, 180 etc.
f) 15, 30, 45 etc. g) 18, 36, 54 etc. h) 12, 24, 36 etc.

4. a) 5, 10, 15, 20, 25, 30, 35, 40, 45, 50. b) 8, 16, 24, 32, 40, 48, 56, 64, 72, 80. c) 40

5. a) 6, 12, 18, 24, 30, 36, 42, 48, 54, 60. b) 8, 16, 24, 32, 40, 48, 56, 64, 72, 80. c) 24

6. a) 30 b) 14 c) 24 d) 20 e) 36 f) 42 g) 24 h) 36 i) 120 j) 60 k) 52 l) 18
m) 175 n) 66 o) 48 p) 140

Factors and HCF

1. a) 1, 2, 5, 10 b) 1, 3, 5, 15 c) 1, 5

2. a) 1, 2, 3, 4, 6, 12 b) 1, 2, 3, 6, 9, 18 c) 1, 2, 3, 6

3. a) 1, 2 b) 1, 5 c) 1, 3 d) 1, 7 e) 1, 2, 5, 10 f) 1, 3 g) 1, 2, 3, 6 h) 1, 2, 4, 8

4. a) 1, 2, 7, 14 b) 1, 3, 7, 21 c) 7

5 a) 1, 2, 3, 4, 6, 8, 12, 24 b) 1, 2, 3, 4, 6, 9, 12, 18, 36 c) 12

6 a) 2 b) 3 c) 3 d) 4 e) 3 f) 1 g) 15 h) 20 i) 7 j) 12 k) 4 l) 9 m) 50 n) 6 o) 90 p) 13

Prime Numbers

1. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29

2. a) prime b) not prime c) not prime d) prime e) prime f) not prime
g) prime h) not prime i) not prime j) not prime k) prime l) not prime
m) not prime n) prime o) not prime p) not prime q) not prime r) not prime

3 a) 2 b) 17/19/101 c) 2 d) 101 e) 9/27/55/81/99/100

4. (a) $2^3 \times 3^2 \times 5^3$ (b) 5×47 (c) $2^3 \times 7^2$
(d) $5 \times 11 \times 13$ (e) $2^2 \times 3 \times 37$ (f) $2^3 \times 3^2 \times 11$
(g) $3^2 \times 5^4$

3. Integers

Adding and Subtracting Negatives

a) - 4 b) - 4 c) – 12 d) – 7 e) – 13 f) 13 g) – 13 h) 3 i) 5 j) - 3
k) - 17 l) -5 m) 17 n) – 14 o) -11 p) – 23 q) 6 r) 17 s) – 19 t) – 14
u) -55 v) – 28 w) -31 x) 80 y) 9 z) 38

Multiplying and Dividing Negatives

a) 45 b) -4 c) -11 d) -24 e) 8 f) -84 g) -9 h) 32 i) – 48 j) 42
k) – 5 l) – 8 m) 9 n) 70 o) – 110 p) – 13

4. Fractions

Adding and Subtracting

Question 1:

(a) $\frac{9}{10}$ (b) $\frac{11}{14}$ (c) $\frac{5}{6}$ (d) $\frac{2}{15}$

(e) $\frac{5}{9}$ (f) $\frac{5}{6}$ (g) $\frac{7}{10}$ (h) $\frac{5}{8}$

(i) $\frac{4}{15}$ (j) $\frac{7}{20}$ (k) $\frac{27}{40}$ (l) $\frac{34}{35}$

(m) $\frac{17}{30}$ (n) $\frac{31}{44}$ (o) $\frac{23}{42}$ (p) $\frac{9}{26}$

Improper and mixed numbers

Question 1:

(a) $2\frac{1}{3}$ (b) $1\frac{2}{5}$ (c) $2\frac{1}{2}$ (d) $1\frac{1}{7}$ (e) $1\frac{2}{3}$

(f) $3\frac{1}{3}$ (g) $11\frac{1}{2}$ (h) $2\frac{3}{4}$ (i) $1\frac{3}{8}$ (j) $2\frac{1}{4}$

Question 2:

(a) $\frac{11}{5}$ (b) $\frac{7}{2}$ (c) $\frac{7}{4}$ (d) $\frac{11}{3}$ (e) $\frac{7}{5}$

(f) $\frac{18}{7}$ (g) $\frac{4}{3}$ (h) $\frac{23}{10}$ (i) $\frac{19}{4}$ (j) $\frac{19}{12}$

5. Converting Fractions, Decimals and Percentages

(a)

Fraction	Decimal	Percentage
1/10	0.1	10%
4/5	0.8	80%
17/100	0.17	17%
3/20	0.15	15%

(b)

Fraction	Decimal	Percentage
11/100	0.11	11%
9/20	0.45	45%
17/25	0.68	68%
3/8	0.375	37.5%

(c)

Fraction	Decimal	Percentage
2/3	0.666...	66.7%
3/1000	0.003	0.3%
21/200	0.105	10.5%
9/80	0.1125	11.25%

(d)

Fraction	Decimal	Percentage
7/5	1.4	140%
19/10	1.9	190%
53/20	2.65	265%
11/4	2.75	275%