

Armadale Academy



S1 Maths Revision Booklet

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

Numbers and words

1. Write these numbers in words:

- a) 92 b) 142 c) 7349 d) 145 923
e) 807 524 f) 1 528 900 g) 24 963 218 h) 7 500 000 000 000



Place
Value

2. Write these numbers using digits:

- a) Thirty one
b) Nine hundred and eleven
c) Five thousand, one hundred
d) Five thousand and ten
e) Eighteen thousand, four hundred and nine
f) Ninety five thousand and fourteen
g) Seventy two thousand, one hundred and thirty four
h) Five hundred thousand, four hundred and five
i) Eight hundred and nineteen thousand, five five hundred and seventy one
j) Nineteen million, four hundred and twenty five thousand, six hundred and four



Writing Numbers
in Words



Writing Numbers
in Digits



Numbers Beyond
a Million

3. At a Yeovil Town football match, there are 4,137 spectators. Write 4,137 in words.
4. The diameter of Mars is six thousand, seven hundred and seventy-nine kilometres. Write six thousand, seven hundred and seventy-nine in figures.
5. Maxine has attempted her homework. Explain the mistakes she has made.

Write these numbers in words

(a) 5400

five thousand and four hundred

(b) 2915

two thousand nine hundred
and fifteen

(c) 79,032

seventy-nine thousand, thirty-two

(d) 100,408

one million, four hundred and eight

Ordering Numbers

1. Write these numbers in **descending** order:

- a) 7,5,9,12,2
b) 70, 80, 20, 30, 90, 10
c) 73, 28, 45, 38, 90, 21
d) 605, 66, 566, 655, 506, 65, 555
e) 2000, 385, 8100, 2800, 888, 400



Ordering
Numbers

2. Arrange these temperatures in **ascending** order:

18°C, 22°C, 9.5°C, 15°C, 21°C, 17°C, 2°C

Place Value

1. Write down the value of underlined digit in each of the numbers below:

- | | | | |
|--------------------|--------------------|---------------------|--------------------------|
| a) 5 <u>4</u> 8 | b) <u>9</u> 02 | c) 6 <u>2</u> 3 | d) <u>3</u> 841 |
| e) 87 <u>9</u> 02 | f) <u>4</u> 8 213 | g) <u>3</u> 9 154 | h) 24 <u>1</u> 03 |
| i) <u>2</u> 94 875 | j) <u>9</u> 40 000 | k) <u>2</u> 500 000 | l) 4 <u>9</u> 70 000 000 |
| m) 0. <u>5</u> 3 | n) 0. <u>2</u> 7 | o) 1. <u>3</u> 59 | p) 29. <u>4</u> 827 |



Place
Value

2. Write down the value of the 7 in the answer to 573×100 .

3. Here are four digits: 4 8 3 5

- Use two of the digits to make the largest possible two-digit number.
- Use all four digits to make the largest possible number.
- Use all four digits to make the smallest possible odd number
- Use all four digits to make the four-digit number closest to 4000.

Multiplication and Division Facts

1. Calculate mentally:

- | | |
|------------------|------------------|
| a) 3×4 | b) 8×7 |
| c) 12×5 | d) 7×6 |
| e) 8×6 | f) 5×10 |
| g) 9×8 | h) 6×4 |
| i) $45 \div 9$ | j) $63 \div 7$ |
| k) $36 \div 12$ | l) $54 \div 9$ |
| m) $27 \div 3$ | n) $64 \div 8$ |
| o) $121 \div 11$ | p) $120 \div 12$ |

2. Martin works for 7 hours and is paid £8 per hour. How much is he paid?

3. Russell is given £4 pocket money each week.

He is saving for a game that costs £32.

How many weeks will it take Russell to save enough money to buy the game?

4. Gregory says "when an odd number is multiplied by an odd number, the answer is always odd."

Is Gregory correct? **Explain.**

5. A group of 3 friends take a journey in a taxi. The total cost of the journey is £72.

The friends share the cost equally.

How much does each person pay?

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



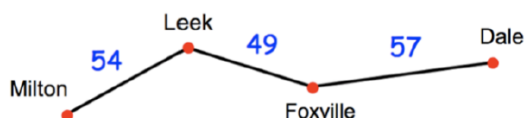
Column Subtraction



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 calculations to find the missing digits:

a)

$$\begin{array}{r} 4 \square \\ + \square 4 \\ \hline 72 \end{array}$$

b)

$$\begin{array}{r} 5 \square \square \\ + \square 7 1 \\ \hline 934 \end{array}$$

c)

$$\begin{array}{r} 547 \\ - 1\square\square \\ \hline \square 69 \end{array}$$

6. Use an appropriate strategy to calculate:

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



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) $288 \div 18$

f) $966 \div 23$

g) $2352 \div 56$

h) $7410 \div 95$



Long
Multiplication
(Column)

14. Felicity spends 25 minutes reading every day.

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



Long Division

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) $2800 \div 100$

f) $966 \div 10$

g) $235\,200 \div 1000$

h) $741 \div 1000$



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) $2800 \div 400$

f) $966 \div 20$

g) $235\,200 \div 8000$

h) $741 \div 3000$



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) $11 + 11 - 6^2 \div 2$

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 \times , create as many calculations with different answers as you can.

4. Can you spot any mistakes?

$$\begin{aligned} \text{Work out } & 9 + 4 \times 3 + 2 \\ & = 13 \times 3 + 2 \\ & = 39 + 2 \\ & = 41 \end{aligned}$$



Order of Operations
(note: Parentheses means Brackets!)

2. Algebra

Collecting like terms

Question 1: Simplify each of the following

(a) $y + y + y + y$

(b) $w + w + w + w + w$

(c) $a + a + a + a + a + a$

(d) $s + s + s$

(e) $n + n$

(f) $g + g + g + g - g$

(g) $y + y + y + y - y - y$

(h) $p + p - p - p$

(i) $3y + 2y$

(j) $4a + 3a$

(k) $9k + 5k$

(l) $7m + m$

(m) $15c + 20c$

(n) $6w - 3w$

(o) $10y + 3y - 5y$

(p) $20t - 14t$

(q) $7x - 3x - x$

(r) $8k - 8k$

(s) $7y - 2y + y$

(t) $5u - 4u$

(u) $y^2 + y^2$

(v) $a^2 + a^2 + a^2$

(w) $c^2 + c^2 + c^2 + c^2 + c^2$

(x) $7y^2 + 3y^2$

(y) $2w^2 + 4w^2 + 8w^2$

(z) $6y^2 - 2y^2 + 3y^2$

Question 2: Simplify the following expressions

(a) $4u - 6u$

(b) $8w - 9w$

(c) $4a + 2a - 9a$

(d) $2y - 9y$

(e) $-3g - 2g$

(f) $-4f + 9f$

(g) $-m - 7m$

(h) $5y^2 - 7y^2$

(i) $6a^2 + 2a^2 - 9a^2$

(j) $ab + ab + ab$

Question 3: Simplify the following expressions

(a) $3a + 2b + 4a + b$

(b) $7y + 5y + 2h + 2h$

(c) $g + 8a + 2a + g$

(d) $7m + 7p + 8m + p + 2p$

(e) $9e + 2 + e + 2$

(f) $4 + 3a + 2a + 8$

(g) $2y + 4 + 3y - 1$

(h) $8 + 3w - w - 3$

(i) $5 - 4s - 2 + 10s$

(j) $3x + 6y + 5x - 2y$

(k) $6m - 2s + 11s + m$

(l) $2a + 3b - 2 + a + 3b + 4$

(m) $3a - 2b + a - 5b$

(n) $2x - 2y - 6x + 5y$

(o) $y - 4m - 3y - 5m$

(p) $7p - 2q - q + 3r + 4r$

(q) $11c + 8d - 6c - 11d$



Collecting Like terms

Multiplying Algebraic Terms

Question 1: Simplify the following expressions.

- (a) $3 \times y$ (b) $w \times 3$ (c) $7 \times x$ (d) $a \times 4$
(e) $a \times c$ (f) $f \times g$ (g) $h \times d$ (h) $a \times y \times m$
(i) $t \times t$ (j) $p \times p$ (k) $a \times a \times a$ (l) $m \times m \times m$
(m) $4 \times f \times g$ (n) $3 \times w \times y$ (o) $p \times 5 \times s$ (p) $n \times c \times 7$
(q) $t \times c \times w$ (r) $y \times x \times w$ (s) $5 \times a \times a$ (t) $y \times 3 \times y$



Question 2: Simplify the following expressions.

- (a) $5 \times 3w$ (b) $4y \times 2$ (c) $3 \times 3m$ (d) $10g \times 3$
(e) $4 \times 2 \times y$ (f) $3 \times 2 \times 2p$ (g) $5 \times 2y \times 3$ (h) $9a \times 2 \times 2$
(i) $3a \times c$ (j) $4y \times z$ (k) $5c \times b$ (l) $c \times 6y$
(m) $2a \times 3y$ (n) $6c \times 3t$ (o) $9w \times 3a$ (p) $2y \times 2g$

Solving Equations

Question 1: Solve the following equations

- (a) $w + 5 = 7$ (b) $c + 2 = 10$ (c) $a - 1 = 6$ (d) $x - 4 = 5$
(e) $x + 4 = 13$ (f) $3w = 12$ (g) $2x = 18$ (h) $\frac{w}{2} = 6$
(i) $\frac{x}{4} = 7$ (j) $5y = 30$ (k) $x + 10 = 40$ (l) $2x = 34$
(m) $x - 9 = 7$ (n) $\frac{m}{6} = 8$ (o) $w - 15 = 35$ (p) $\frac{x}{10} = 5$
(q) $11y = 55$ (r) $2x = 11$ (s) $b + 6 = 4$ (t) $\frac{x}{3} = 1.5$
(u) $4y = 10$ (v) $10g = 37$ (w) $a - 7 = -3$ (x) $v + 2 = -6$
(y) $\frac{w}{4} = 2.7$ (z) $5y = 24$

Question 2 Solve the following equations

- (a) $2x + 3 = 9$ (b) $3w - 1 = 14$ (c) $7y + 2 = 30$
(d) $5x + 20 = 35$ (e) $6c - 12 = 48$ (f) $8m - 4 = 20$
(g) $7w + 13 = 90$ (h) $12p - 18 = 30$ (i) $9w - 5 = 67$
(j) $10a + 40 = 100$ (k) $9x - 24 = 84$ (l) $7w + 1 = 1$
(m) $6x - 19 = 5$ (n) $3w + 4 = 43$ (o) $\frac{x}{3} + 1 = 5$
(p) $\frac{c}{2} - 4 = 6$ (q) $\frac{x}{10} + 3 = 9$ (r) $\frac{n}{9} - 8 = 1$



3. Multiples, Factors and Primes

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



Multiples and LCM

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.



Factors and HCF

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

Question 1: List the first ten prime numbers

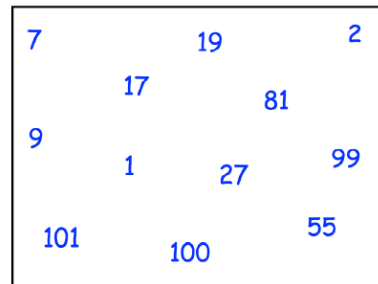
Question 2: Are the numbers below, **prime** or **not prime**?

- (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



4. Integers

Order from smallest to largest

- (a) 3, -5, 1, 0, -2, 4 (b) -1, 8, -5, 2, -9, -4, 3
(c) -1, -7, -2, 5, -6, 1 (d) 10, -7, -3, 5, -9, -2, -12
(e) 21, -3, 16, -19, -15, 23, -30 (f) -25, 35, 15, -5, 25, -45, 20
(g) 129, 101, -11, -111, 92, -91, 133, -29



Adding and Subtracting negatives

- (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

- (a) -9×-5 (b) $-32 \div 8$ (c) $66 \div -6$ (d) 2×-12
 (e) $-24 \div -3$ (f) -12×7 (g) $-54 \div 6$ (h) -16×-2
 (i) 8×-6 (j) -7×-6 (k) $40 \div -8$ (l) $56 \div -7$
 (m) $-81 \div -9$ (n) -14×-5 (o) 10×-11 (p) $-65 \div 5$



5. Patterns

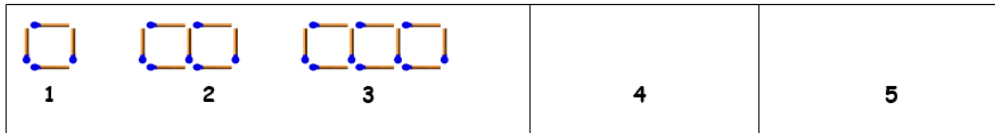


figure	1	2	3	4	5	6	7	8	9	10
matches	4	7								

RULE : _____

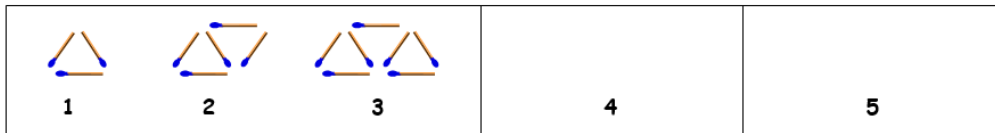


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matches										

RULE : _____

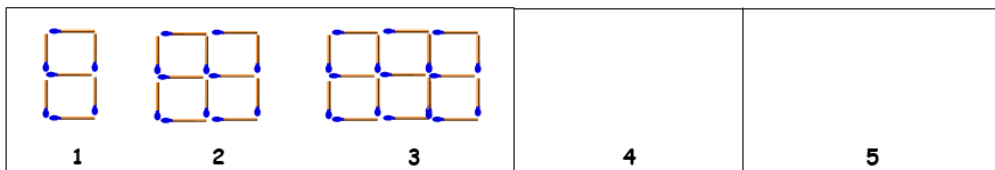


figure	1	2	3	4	5	6	7	8	9	10
matches										

RULE : _____

Answers

1. Number Work

Numbers and words

- 1a) ninety-two
- b) one hundred and forty-two
- c) seven thousand, three hundred and forty-nine
- d) one hundred and forty-five thousand, nine hundred and twenty-three
- e) eight hundred and seven thousand, five hundred and twenty-four
- f) one million, five hundred and twenty-eight thousand, nine hundred
- g) twenty-four million, nine hundred and sixty-three thousand, two hundred and eighteen
- h) seven trillion, five hundred billion

- 2 a) 31 b) 911 c) 5100 d) 5010 e) 18,409
f) 95,014 g) 72,134 h) 500,405 i) 819, 571 j) 19,425,604

3. Four thousand, one hundred and thirty-seven

4. 6,779

5. a) five thousand, four hundred b) two thousand, nine hundred and fifteen
c) seventy-nine thousand **and** thirty-two d) one **hundred thousand**, four hundred and eight

Ordering Numbers

1. a) 12, 9, 7, 5, 2 b) 90, 80, 70, 30, 20, 10 c) 90, 73, 45, 38, 28, 21
d) 655, 605, 566, 555, 506, 66, 65 e) 8100, 2800, 2000, 888, 400, 385
2. 2°C, 9.5°C, 15°C, 17°C, 18°C, 21 °C, 22°C

Place Value

1. a) 40 b) 900 c) 3 d) 3,000 e) 900 f) 40,000
g) 9,000 h) 100 i) 200,000 j) 40,000 k) 2,000,000 l) 70,000,000
m) 0.5 n) 0.07 o) 0.009 p) 0.08
2. 7,000
3. a) 85 b) 8,543 c) 3,485 d) 3,854

Multiplication and Division Facts

1. a) 12 b) 56 c) 60 d) 42 e) 48 f) 50 g) 72 h) 24
i) 5 j) 9 k) 3 l) 6 m) 9 n) 8 o) 11 p) 10
2. £58
3. 8 weeks
4. Yes. A factor of an even number must always be even (2), so odd numbers cannot be multiplied together to give an even number.
5. £24

Four Operations with Whole Numbers and Decimals

- 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
- 6,439 fans
- 2,773 km
- a) 106 km b) 160km
- a) $48 + 34$ b) $563 + 371$ c) $547 - 178 = 369$
- 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
- 245 days
- 98 chairs
- £799.50
- 167 pupils
- £320
- 33 hours
- a) 1,027 b) 928 c) 41,492 d) 105,060 e) 16 f) 42 g) 42 h) 78
- 775 minutes
- 19 years old
- 954 supporters
- £529
- 37 rows

Multiplying and Dividing by 10, 100, 1000

- a) 790 b) 324,00 c) 920 d) 12,360 e) 28 f) 96.6 g) 2,352 h) 0.741
- 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

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

2. Algebra

Collecting Like Terms

- a) 4y b) 5w c) 6a d) 3s e) 2n f) 3g g) 2y h) 0 i) 5y j) 7a
k) 14k l) 8m m) 35c n) 3w o) 8y p) 6t q) 3x r) 0 s) 6y t) u
u) $2y^2$ v) $3a^2$ w) $5c^2$ x) $10y^2$ y) $14w^2$ z) $7y^2$
- a) -2u b) -w c) -3a d) -7y e) -5g f) 5f g) -8m h) $-2y^2$ i) $-a^2$ j) 3ab
- a) $7a + 3b$ b) $12y + 4h$ c) $2g + 10a$ d) $15m + 10p$ e) $10e + 4$
f) $5a + 8$ g) $5y + 3$ h) $2w + 5$ i) $6s + 3$ j) $8x + 4y$
k) $7m + 9s$ l) $3a + 6b + 2$ m) $4a - 7b$ n) $-4x + 3y$ o) $-2y - 9m$
p) $7p - 3q + 7r$ q) $5c - 3d$

Multiplying Algebraic Terms

1. a) $3y$ b) $3w$ c) $7x$ d) $4a$ e) ac f) fg g) hd h) aym i) t^2 j) p^2
k) a^3 l) m^3 m) $4fg$ n) $3wy$ o) $5ps$ p) $7cn$ q) ctw r) wxy s) $5a^2$ t) $3y^2$
2. a) $15w$ b) $8y$ c) $9m$ d) $30g$ e) $8y$ f) $12p$ g) $30y$ h) 36 i) $3ac$ j) $4yz$
k) $5bc$ l) $6cy$ m) $6ay$ n) $18ct$ o) $27aw$ p) $4gy$

Solving Equations

1. a) $w = 2$ b) $c = 8$ c) $a = 7$ d) $x = 9$ e) $x = 9$ f) $w = 4$ g) $x = 9$ h) $w = 12$
i) $x = 28$ j) $y = 6$ k) $x = 30$ l) $x = 17$ m) $x = 16$ n) $m = 48$ o) $w = 45$ p) $x = 50$
q) $y = 5$ r) $x = 5.5$ s) $b = -2$ t) $x = 4.5$ u) $y = 2.5$ v) $g = 3.7$ w) $a = 4$ x) $x = -8$
y) $w = 10.8$ z) 120
2. a) $x = 3$ b) $w = 5$ c) $y = 4$ d) $x = 3$ e) $c = 10$ f) $m = 3$ g) $w = 11$ h) $p = 4$
i) $w = 8$ j) $a = 6$ k) $x = 12$ l) $w = 0$ m) $x = 4$ n) $w = 13$ o) $x = 12$ p) $c = 20$
q) $x = 60$ r) $n = 81$

3. 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. Integers

Order from smallest to largest

a) -5, -2, 0, 1, 3, 4

b) -9, -5, -4, -1, 2, 3, 8

c) -7, -6, -2, -1, 1, 5

d) -12, -9, -7, -3, -2, 5, 10

e) -30, -19, -15, -3, 16, 21, 23

f) -45, -25, -5, 15, 20, 25, 35

g) -111, -91, -29, -11, 92, 101, 129, 133

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

5. Patterns

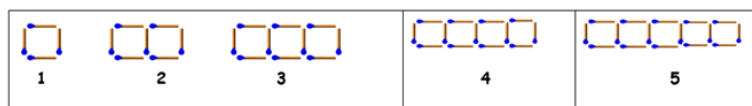


figure	1	2	3	4	5	6	7	8	9	10
matches	4	7	10	13	16	19	22	25	28	31

RULE: $m = 3f + 1$

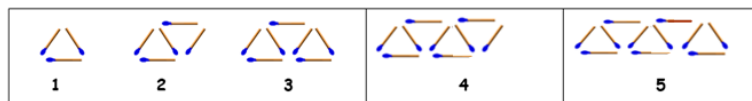


figure	1	2	3	4	5	6	7	8	9	10
matches	3	5	7	9	11	13	15	17	19	21

RULE: $m = 2f + 1$

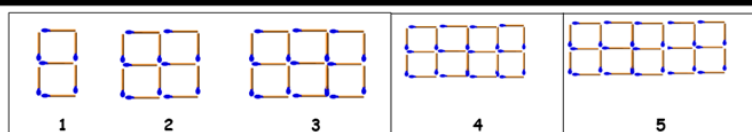


figure	1	2	3	4	5	6	7	8	9	10
matches	7	12	17	22	27	32	37	42	47	52

RULE: $m = 5f + 2$