

Grade 6 – Textbook Answers

(CAPS Edition)

Revised for 2023

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Chapter A1

Number systems

A1.1 Natural numbers, whole numbers, even numbers and uneven numbers:

NATURAL NUMBERS	WHOLE NUMBERS
1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 7 ; 8 ; _ _ _	0 ; 1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 7 ; 8 ; 9 ; _ _ _
Even numbers: 2 ; 4 ; 6 ; 8 ; 10 ; ... Divisible by 2 without a remainder	
Uneven numbers: 1 ; 3 ; 5 ; 7 ; 9 ; 11 ; ... If you divide by 2, there will be a remainder.	

Exercise 1:

Date: _____

- (1) (a) Natural numbers smaller than 10: 9 ; 8 ; 7 ; 6 ; 5 ; 4 ; 3 ; 2 ; 1
- (b) Natural numbers between 21 and 28: 22 ; 23 ; 24 ; 25 ; 26 ; 27
- (c) Even numbers between 52 and 64 54 ; 56 ; 58 ; 60 ; 62
- (d) Uneven numbers from 35 to 45: 35 ; 37 ; 39 ; 41 ; 43 ; 45
- (e) Even numbers smaller than 146 but greater than 140: 144 ; 142
- (f) The natural numbers smaller than 21 but greater than 15 16 ; 17 ; 18 ; 19 ; 20
- (g) The first 5 whole numbers which will be uneven: 1 ; 3 ; 5 ; 7 ; 9
- (h) The first 5 whole numbers which are natural numbers 1 ; 2 ; 3 ; 4 ; 5
- (i) The even numbers from 132 to 142: 132 ; 134 ; 136 ; 138 ; 140 ; 142
- (j) The whole numbers between 164 and 172 which are also divisible by 2 166 ; 168 ; 170
- (k) Write the three uneven numbers preceding 60 006 60 005 ; 60 003 ; 60 001
- (l) Write the first three uneven numbers following 5 999: 6 001 ; 6 003 ; 6 005

(2) Complete the next 5 numbers in the following sequences:

- (a) 2 ; 4 ; 6 ; 8 ; 10 ; 12 ; 14 ; 16 ; 18 ; 20 (+2)
- (b) 110 ; 120 ; 130 ; 140 ; 150 ; 160 ; 170 ; 180 ; 190 (+10)
- (c) 11 ; 21 ; 31 ; 41 ; 51 ; 61 ; 71 ; 81 ; 91 ; 101 (+10)
- (d) 18 ; 27 ; 36 ; 45 ; 54 ; 63 ; 72 ; 81 (+9)

(e) 1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 7 ; 8 ; 9 (+1)

(f) 19 200 ; 9 600 ; 4 800 ; 2 400 ; 1 200 ; 600 ; 300 ; 150 ($\div 2$)

(g) 3 ; 9 ; 15 ; 21 ; 27 ; 33 ; 39 ; 45 (+6)

(h) 72 ; 63 ; 54 ; 45 ; 36 ; 27 ; 18 ; 9 ; 0 (-9)

(i) 1 ; 4 ; 9 ; 16 ; 25 ; 36 ; 49 ; 64 ; 81 (1 x 1, 2 x 2, 3 x 3 etc)

-1 -2 -3 -4

(j) 100 ; 99 ; 97 ; 94 ; 90 ; 85 ; 79 ; 72 ; 64 ; 55

(k) a ; i ; b ; i ; c ; i ; d ; i ; e ; i

(l) 906 ; 900 ; 894 ; 888 ; 882 ; 876 ; 870 ; 864 (Subtract 6)

+4 +6

(m) 28 ; 32 ; 38 ; 46 ; 56 ; 68 ; 82 ; 98

(n) 51 ; 43 ; 36 ; 30 ; 25 ; 21 ; 18 ; 16 ; 15 (-8 ; -7 ; -6)

(3) Complete the following:

(a) The four even numbers preceding 10 000 9 998 ; 9 996 ; 9 994 ; 9 992

(b) The four even numbers following 7 984: 7 986 ; 7 988 ; 7 990 ; 7 992

(c) The largest six-digit number: 999 999

(d) The smallest four-digit number : 1 000

A.1.2 RULES OF DIVISIBILITY:

<p><u>Divisible by '2'</u> All numbers ending on an even number or '0' are divisible by '2' EXAMPLE: '3 458' The number ends on an '8' and is therefore divisible by '2'.</p>	<p><u>Divisible by '5'</u> All numbers ending on a '0' or a '5' are divisible by '5' EXAMPLE: '9 785' The number ends on a '5' and is therefore divisible by '5'.</p>	<p><u>Divisible by '10'</u> All numbers ending on a '0' are divisible by '10'. EXAMPLE: '2 040' The number ends on a '0' and is therefore divisible by '10'.</p>
<p><u>Divisible by '3'</u> If the sum of all the digits of the number is divisible by '3' then the number will be divisible by '3' EXAMPLE: '351' The sum of the digits in the number '351', $3 + 5 + 1 = 9$, which is divisible by 3, the entire number is divisible by '3'</p>	<p><u>Divisible by '4'</u> If the last 2 digits of a number are divisible by '4' then the entire number will be divisible by '4'. Also look out for numbers with a double zero at the end. EXAMPLE: '336' The '36' in the number '336' is divisible by '4' and the entire number will therefore be divisible by '4'.</p>	<p><u>Divisible by '6'</u> If a number is divisible by '2' and '3' then the number will be divisible by '6'. EXAMPLE: '258' The number '258' is divisible by '2' and '3' and is therefore divisible by '6'.</p>

ADDITION

Date: _____

A method to improve your mental maths.

(1) Add the tens and then the ones.

Write your answer in the space.

Write the final answer.

HINT:
Start by adding the larger numbers first.
(Addition is commutative)

		Answer of tens	Answer of ones	Final answer.
Example:				
(a)	$16 + 12 + 14 + 36 + 29 + 45 =$	120	32	152
(b)	$11 + 21 + 12 + 11 + 32 + 23 =$	100	10	110
(c)	$12 + 21 + 32 + 44 + 12 + 11 =$	120	12	132
(d)	$12 + 22 + 32 + 42 + 62 + 12 =$	170	12	182
(e)	$14 + 14 + 12 + 15 + 32 + 24 =$	90	21	111

(2) Do the same. Start with the hundreds.

		Answer of hundreds	Answer of tens	Answer of ones	Final answer
Example:					
(a)	$123 + 241 + 135 + 420 =$	800	110	9	919
(b)	$315 + 211 + 612 + 120 =$	1200	50	8	1 258
(c)	$215 + 122 + 232 + 421 =$	900	80	10	990
(d)	$612 + 224 + 108 + 421 =$	1300	50	15	1 365
(e)	$718 + 123 + 412 + 518 =$	1 700	50	21	1 771

Exercise 2:

Date: _____

(1) Make a ✓ in the correct block(s).

	DIVISIBLE BY '2'	DIVISIBLE BY '3'	DIVISIBLE BY '4'	DIVISIBLE BY '5'	DIVISIBLE BY '6'	DIVISIBLE BY '10'
64	✓		✓			
373						
260	✓		✓	✓		✓
875				✓		
9 000	✓	✓	✓	✓	✓	✓
22 677		✓				
30 000	✓	✓	✓	✓	✓	✓
5 899						
12 972	✓	✓	✓		✓	
54 788	✓		✓			

(2) Give a reason why the following numbers are divisible by the number in brackets.

a) 3 465 (Divisible by 5): The last number is a '5'(b) 6 890 (Divisible by 10): The last number is a '0'(c) 6 348 (Divisible by 2): The last number is an 'even number'(d) 23 648 (Divisible by 4): The last two numbers are divisible by '4'(e) 156 (Divisible by 6): The number is divisible by '2' and '3'(3) Give all the possible numbers suitable for the to be divisible by 2'.56 78 x x = x = x = x = x = (4) Give all the possible numbers suitable for the to be divisible by 3'13 48 x x = x = x = (5) Give all the possible numbers suitable for the to be divisible by '4'.67 76 x x = x = x =

A1.3 Factors:

Factors: The **factors** of a number are any numbers that divide into it, without a remainder **or** a factor times a factor equals a product.

Example:

12

$$1 \times 12$$

$$2 \times 6$$

$$3 \times 4$$

$$F_{12}: \{1; 2; 3; 4; 6; 12\}$$

Exercise 3:

Date: _____

(1 Write the factors of the following numbers by using your times tables.

(a)

20

$$1 \times 20$$

$$2 \times 10$$

$$4 \times 5$$

F_{20}

1 ; 2 ; 4 ; 5 ; 10 ; 20

(b)

24

$$1 \times 24$$

$$2 \times 12$$

$$3 \times 8$$

$$4 \times 6$$

F_{24}

1 ; 2 ; 3 ; 4 ; 6 ; 8 ; 12 ; 24

(c)

36

$$1 \times 36$$

$$2 \times 18$$

$$3 \times 12$$

$$4 \times 9$$

$$6 \times 6$$

F_{36}

1 ; 2 ; 3 ; 4 ; 6 ; 9 ; 12 ;
18 ; 36

(d)

56

$$1 \times 56$$

$$2 \times 28$$

$$4 \times 14$$

$$7 \times 8$$

F_{56}

1 ; 2 ; 4 ; 7 ; 8 ; 14 ; 28 ;

56

(e)

72

$$1 \times 72$$

$$2 \times 36$$

$$3 \times 24$$

$$4 \times 18$$

$$6 \times 12$$

$$8 \times 9$$

F_{72}

1 ; 2 ; 3 ; 4 ; 6 ; 8 ; 9 ;

12 ; 18 ; 24 ; 36 ; 72

(f)

100

$$1 \times 100$$

$$2 \times 50$$

$$4 \times 25$$

$$5 \times 20$$

$$10 \times 10$$

F_{100}

1 ; 2 ; 4 ; 5 ; 10 ; 20 ;

25 ; 50 ; 100

(g)	70	(h)	90	(i)	42
	1×70		1×90		1×42
	2×35		2×45		2×21
	5×14		3×30		3×14
	7×10		5×18		6×7
			6×15		
			9×10		

F_{70}
1 ; 2 ; 5 ; 7 ; 10 ; 14 ; 35 ; 70

F_{90}
1 ; 2 ; 3 ; 5 ; 6 ; 9 ; 10 ;
15 ; 18 ; 30 ; 45 ; 90

F_{42}
1 ; 2 ; 3 ; 6 ; 7 ; 14 ; 21 ;
42

(2) Write the factors of the following numbers:

(a) F_{21} : $1 ; 3 ; 7 ; 21$

(b) F_{30} : $1 ; 2 ; 3 ; 5 ; 6 ; 10 ; 15 ; 30$

(c) F_{60} : $1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 10 ; 12 ; 15 ; 20 ; 30 ; 60$

(d) F_{72} : $1 ; 2 ; 3 ; 4 ; 6 ; 8 ; 9 ; 12 ; 18 ; 24 ; 36 ; 72$

(e) F_{64} : $1 ; 2 ; 4 ; 8 ; 16 ; 32 ; 64$

(f) F_{80} : $1 ; 2 ; 4 ; 5 ; 8 ; 10 ; 16 ; 20 ; 40 ; 80$

*(g) F_{200} : $1 ; 2 ; 4 ; 5 ; 8 ; 10 ; 20 ; 25 ; 40 ; 50 ; 100 ; 200$

*(h) F_{1000} : $1 ; 2 ; 4 ; 5 ; 8 ; 10 ; 20 ; 25 ; 40 ; 50 ; 100 ;$

$125 ; 200 ; 250 ; 500 ; 1\ 000$

*(i) F_{120} : $1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 8 ; 10 ; 12 ; 15 ; 20 ; 24 ; 30 ; 40 ; 60 ; 120$

*(j) F_{144} : $1 ; 2 ; 3 ; 4 ; 6 ; 8 ; 9 ; 12 ; 16 ; 18 ; 24 ; 36 ; 48 ; 72 ; 144$

(3) Write down the missing factors:

*(a) F_{156}

1	2	3	4	6	12	13	26	39	52	78	156
---	---	---	---	---	----	----	----	----	----	----	-----

*(b) F_{96}

1	2	3	4	6	8	12	16	24	32	48	96
---	---	---	---	---	---	----	----	----	----	----	----

*(c) F_{112}

1	2	4	7	8	14	16	28	56	112
---	---	---	---	---	----	----	----	----	-----

*(d) F_{108}

1	2	3	4	6	9	12	18	27	36	54	108
---	---	---	---	---	---	----	----	----	----	----	-----

*(e) F_{216}

1	2	3	4	6	8	9	12	18	24	27	36	54	72	108	216
---	---	---	---	---	---	---	----	----	----	----	----	----	----	-----	-----

(4) Consider the following:**MORE ADVANCED FACTORS:**

Find the factors of:

Use the rules of divisibility
to do the sums!!

600

1 500

1×600

8×75

$1 \times 1\,500$

10×150

2×300

10×60

2×750

12×125

3×200

12×50

3×500

15×100

4×150

15×40

4×375

20×75

5×120

20×30

5×300

25×60

6×100

24×25

6×250

30×50

 F_{600}

1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 8 ; 10 ; 12 ; 15

20 ; ; 24 ; ; 25 ; 30 ; 40 ; 50 ; 60

75 ; 100 ; 120 ; 150 ; 200 ; 300 ;

600

 $F_{1\,500}$

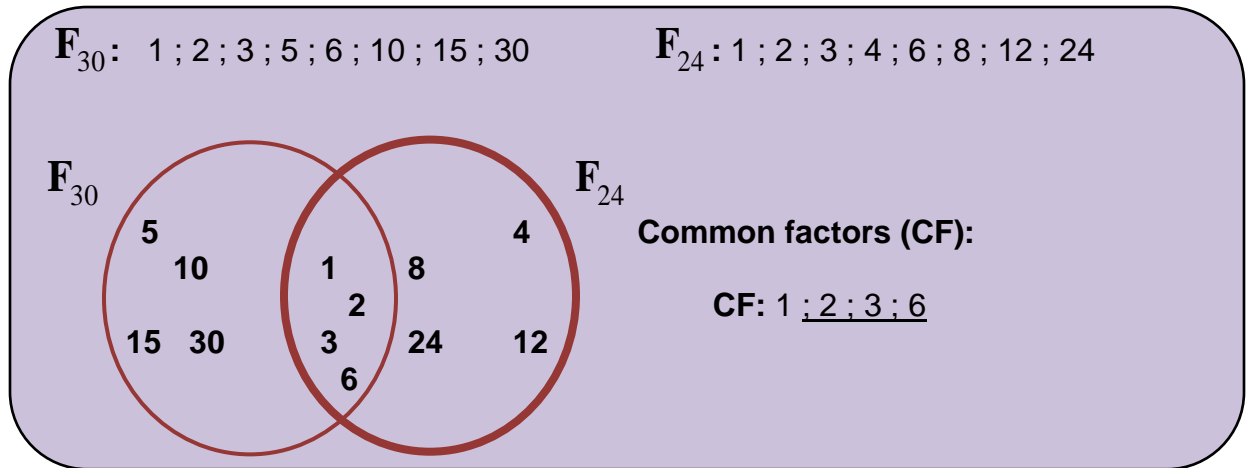
1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 10 ; 12 ; 15 ;

20 ; 25 ; 30 ; 50 ; 60 ; 75 ; 100 ;

125 ; 150 ; 250 ; 300 ; 375 ; 500 ;

750 ; 1 500

A1.4 Common factors:



Exercise 4:

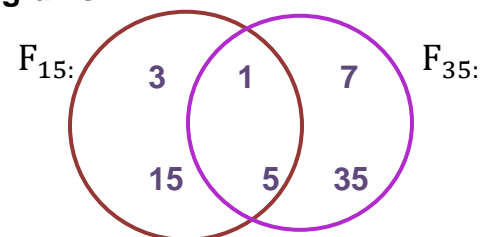
Date: _____

(1) Write down the factors and complete the circle diagrams.

(a) F_{15} : 1 ; 3 ; 5 ; 15

F_{35} : 1 ; 5 ; 7 ; 35

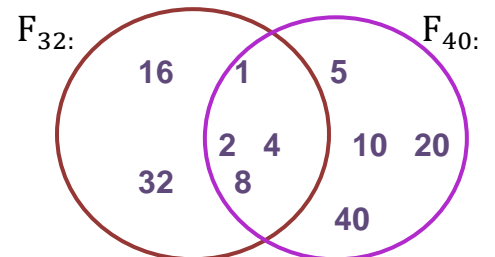
CF: 1 ; 5



(b) F_{32} : 1 ; 2 ; 4 ; 8 ; 16 ; 32

F_{40} : 1 ; 2 ; 4 ; 5 ; 8 ; 10 ; 20 ; 40

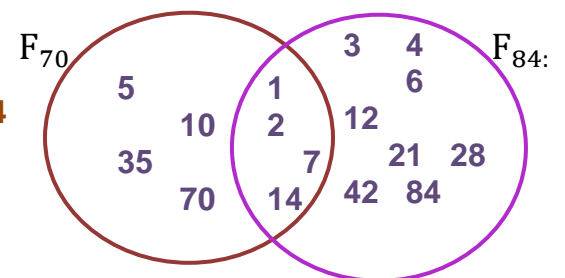
CF: 1 ; 2 ; 4 ; 8



(c) F_{70} : 1 ; 2 ; 5 ; 7 ; 10 ; 14 ; 35 ; 70

F_{84} : 1 ; 2 ; 3 ; 4 ; 6 ; 7 ; 12 ; 14 ; 21 ; 28 ; 42 ; 84

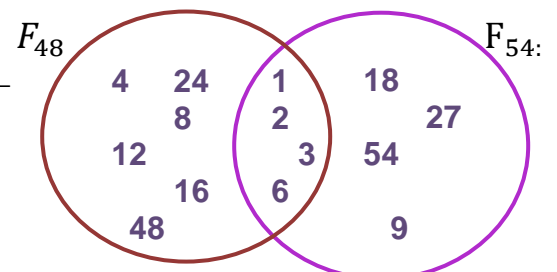
CF: 1 ; 2 ; 7 ; 14



(d) F_{48} : 1 ; 2 ; 3 ; 4 ; 6 ; 8 ; 12 ; 16 ; 24 ; 48

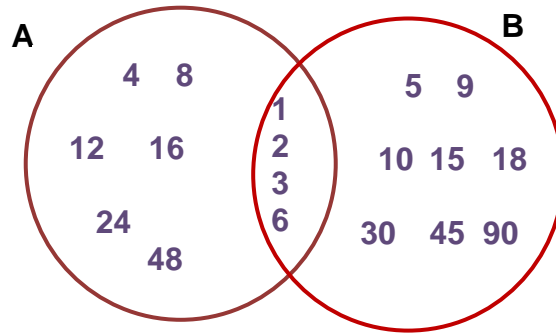
F_{54} : 1 ; 2 ; 3 ; 6 ; 9 ; 18 ; 27 ; 54

CF: 1 ; 2 ; 3 ; 6



(2) Encircle the HCF.(GCF)

(3) Study the set of factors below and answer the following questions:



- (a) The factors of which number is represented by A? 48
- (b) The factors of which number is represented by B? 90
- (c) What are the common factors of A and B? 1 ; 2 ; 3 ; 6
- (d) What is the highest common factor (HCF) or (GCF) of A and B? 6
- (e) Which of the common factors are even numbers? 2 ; 6

(4) Complete the following:

F_{36} : 1 ; 2 ; 3 ; 4 ; 6 ; 9 ; 12 ; 18 ; 36

F_{60} : 1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 10 ; 12 ; 15 ; 20 ; 30 ; 60

Common factors: 1 ; 2 ; 3 ; 4 ; 6 ; 12

GCF: 12

(5) Complete the following:

F_{56} : 1 ; 2 ; 4 ; 7 ; 8 ; 14 ; 28 ; 56

F_{49} : 1 ; 7 ; 49

Common factors: 1 ; 7

GCF: 7

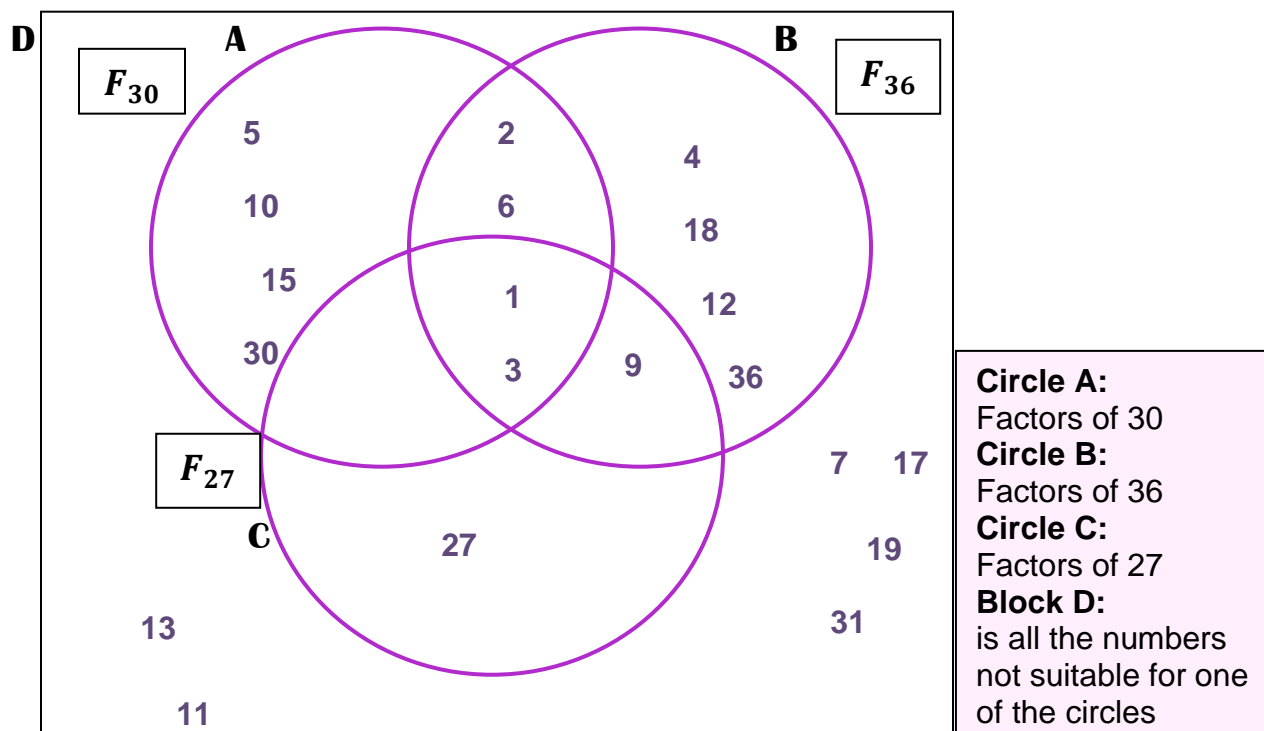
(6) Write the HCF(GCF) of the following numbers:

- (a) 56 and 64 8 (b) 36 and 48 12
- (c) 144 and 60 12 (d) 45 and 90 45
- (e) 36 and 40 4 (f) 45 and 63 9

(7) A challenge!

Complete the venn diagram by writing the numbers in the correct space and answer the questions.

1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 7 ; 9 ; 10 ; 11 ; 12 ; 13 ; 15 ; 17 ; 18 ; 19 ; 27 ; 30 ; 31 ; 36



- (a) Which of the numbers are common factors of 30, 36 and 27? 1 ; 3
- (b) Which numbers are common factors of 30 and 36? 1 ; 2 ; 3 ; 6
- (c) Which numbers are common factors of 36 and 27. 1 ; 3 ; 9
- (d) Write down the numbers in block D, that is not part of A, B or C. 7 ; 11 ; 13 ; 17 ; 19 ; 31
- (e) Arrange the numbers in block D in **descending order**. 31 ; 19 ; 17 ; 13 ; 11 ; 7
- (f) Arrange the common factors of 30 and 36 in **ascending order**. 1 ; 2 ; 3 ; 6
- (g) What is the **GCF(HCF)** of 30 and 36? 6
- (h) What is the **GCF(HCF)** 30 and 27? 3
- (i) What is the **GCF(HCF)** 27 and 36? 9

A1.5 Multiples:

A **multiple of a number** is a number that are adding repeatedly to a number as well as to the answer. E.g. **Multiples of 6** M_6 : 6 ; 12 ; 18 ; 24 ; 30 ; 36 ; ...

Exercise 5:

Date: _____

(1) (a) Write down the first **eight** multiples of 4: 4 ; 8 ; 12 ; 16 ; 20 ; 24 ; 28 ; 32

(b) Write down the first **eight** multiples of 6:

M_6 : 6 ; 12 ; 18 ; 24 ; 30 ; 36 ; 48 ; 56

(c) What is the smallest multiple of 7? 7

(d) Write down the multiples of 7, between 14 and 70:

21 ; 28 ; 35 ; 42 ; 49 ; 56 ; 63

(e) Complete:

M_8 : 8 ; 16 ; 24 ; 32 ; 40 ; 48 ; 56 ; 64 ; 72 ; 80 88 ; 96

M_9 : 9 ; 18 ; 27 ; 36 ; 45 ; 54 ; 63 ; 72 ; 81 ; 90 ; 99

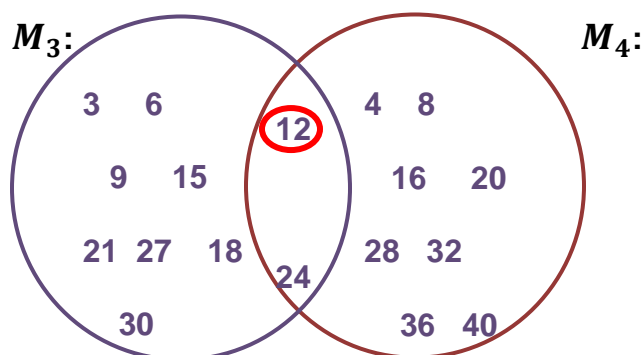
(f) (i) Write down the first ten multiples of 3 and 4:

M_3 : 3 ; 6 ; 9 ; 12 ; 15 ; 18 ; 21 ; 24 ; 27 ; 30

M_4 : 4 ; 8 ; 12 ; 16 ; 20 ; 24 ; 28 ; 32 ; 36 ; 40

(ii) Encircle the numbers which are multiples of 3 and multiples of 4.

(2) (a) Present the first ten multiples of 3 and 4 in the circles::



(b) Encircle the **LCM** – Lowest common multiple!

(3) Write down the first 10 multiples of:

(a) M_6 : 6 ; 12 ; 18 ; 24 ; 30 ; 36 ; 42 ; 48 ; 54 ; 60

M_8 : 8 ; 16 ; 24 ; 32 ; 40 ; 48 ; 56 ; 64 ; 72 ; 80

The common multiples are: 24 ; 48 LCM: 24

(b): M_7 : 7 ; 14 ; 21 ; 28 ; 35 ; 42 ; 49 ; 56 ; 63 ; 70

M_2 : 2 ; 4 ; 6 ; 8 ; 10 ; 12 ; 14 ; 16 ; 18 ; 20

LCM: 14

(c) M_4 : 4 ; 8 ; 12 ; 16 ; 20 ; 24 ; 28 ; 32 ; 36 ; 40

M_3 : 3 ; 6 ; 9 ; 12 ; 15 ; 18 ; 21 ; 24 ; 27 ; 30

LCM: 12

(d) M_7 : 7 ; 14 ; 21 ; 28 ; 35 ; 42 ; 49 ; 56 ; 63 ; 70

M_8 : 8 ; 16 ; 24 ; 32 ; 40 ; 48 ; 56 ; 64 ; 72 ; 80

LCM: 56

(e) M_6 : 6 ; 12 ; 18 ; 24 ; 30 ; 36 ; 42 ; 48 ; 54 ; 60

M_5 : 5 ; 10 ; 15 ; 20 ; 25 ; 30 ; 35 ; 40 ; 45 ; 50

LCM: 30

(f) Write down the LCM of the following.

(i) 3 ; 4 and 5 60 (ii) 2 ; 3 and 6 6

(iii) 5 ; 6 and 3 30 (iv) 7 ; 8 and 4 56

(v) 6 ; 8 and 3 24 (vi) 3 ; 5 and 9 45

(4) Which number is both a multiple and a factor of 8?

8

MULTIPLES ON YOUR CALCULATOR:

You can use the constant function on your calculator to determine the multiples.

A1.6 Prime numbers:

A **prime** number can only be divided by 1 and itself. (Numbers with only 2 factors)

E.g. 2 ; 3 ; 5 ; 7 ; 11 ; 13 ; 17 ; 19 etc.

'1' is not a prime number, because it only has 1 factor which is 1.

Numbers with more than 2 factors are called **composite numbers**.

Factors which are prime numbers are called **prime factors**.

The factors of 6 are: F_6 : 1 ; 2 ; 3 ; 6 but the prime factors of 6 are 2 and 3.

- (1) (a) Write down the first 6 prime numbers: 2 ; 3 ; 5 ; 7 ; 11 ; 13
- (b) Which prime number is also an even number? 2
- (c) Write down the prime numbers between 17 and 29? 19 ; 23
- (d) Write down the factors of 12 which are also prime numbers: 2 ; 3
- (e) Why is 1 not be a prime number? Only one factor '1'

(2) Write the factors of the following numbers and encircle the prime factors.

(a) F_{21} : 1 ; 3 ; 7 ; 21

(b) F_{15} : 1 ; 3 ; 5 ; 15

(c) F_{28} : 1 ; 2 ; 4 ; 7 ; 14 ; 28

(d) F_{22} : 1 ; 2 ; 11 ; 22

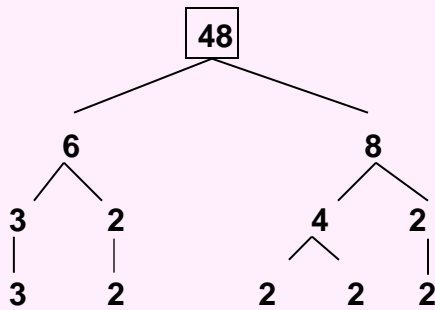
(e) F_{30} : 1 ; 2 ; 3 ; 5 ; 6 ; 10 ; 15 ; 30

(f) F_{32} : 1 ; 2 ; 4 ; 8 ; 16 ; 32

(g) F_{42} : 1 ; 2 ; 3 ; 6 ; 7 ; 14 ; 21 ; 42

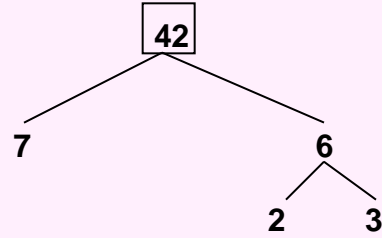
(h) F_{56} : 1 ; 2 ; 4 ; 7 ; 8 ; 14 ; 28 ; 56

Prime factors can be determined by using a factor tree:



$$\therefore 3 \times 2 \times 2 \times 2 \times 2 = 48$$

Prime factors: 2 and 3



$$\therefore 7 \times 2 \times 3 = 42$$

Prime factors: 2, 3 and 7

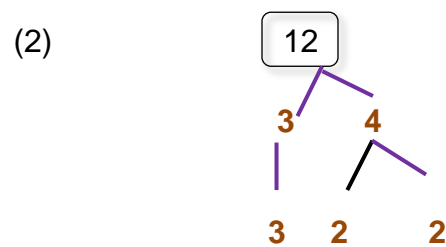
Exercise 7:

Date: _____

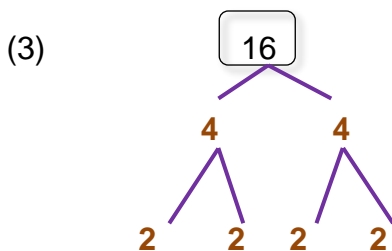
Draw factor trees to determine the prime factors of the following numbers



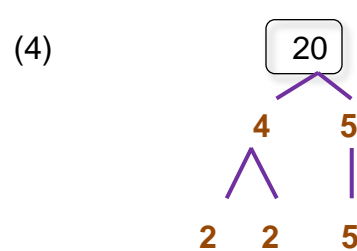
Prime factors of: 3



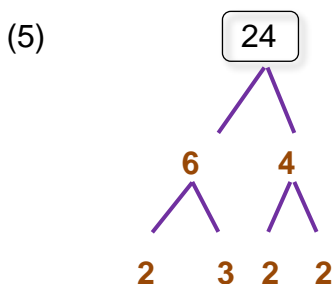
Prime factors of 12: 2; 3



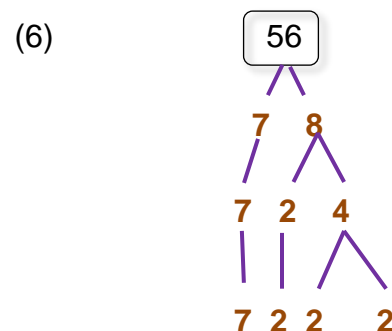
Prime factors of 16: 2



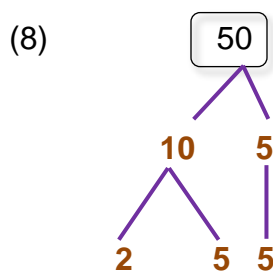
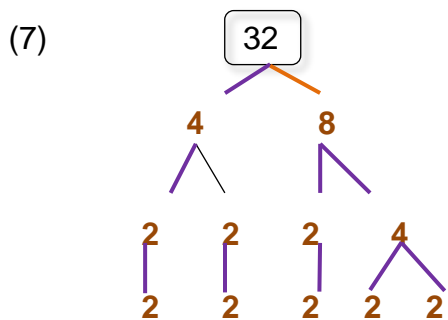
Prime factors of 20: 2; 5



Prime factors of 24: 2; 3



Prime factors of 56: 2; 7



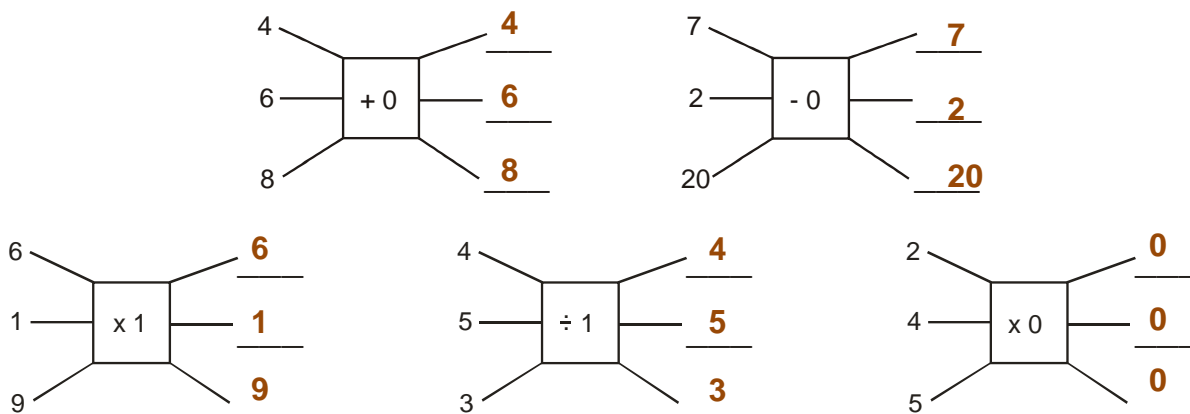
Prime factors of 32: 2 Prime factors of 50: 2; 5

A1.7 Properties of "1" and "0":

Exercise 8:

Date: _____

(1) Complete the correct numbers on the right-hand side.



(2) Answer the following questions:

- (a) What is the outcome if you add 0 to a number? The number stays the same
- (b) What is the outcome if you subtract 0 from a number? The number stays the same
- (c) What is the outcome if you multiply a number by 1? The number stays the same
- (d) What is the outcome if you divide a number by 1? The number stays the same
- (e) What is the outcome if you multiply a number by 0?

'0'.

WHEN WILL THE VALUE OF A NUMBER REMAIN THE SAME?

Any number + 0 Any number - 0 Any number x 1 Any number ÷ 1

IDENTITY ELEMENTS:

The identity element of multiplication and division is 1

The identity element of addition and subtraction is 0

(3) Write the following answers:

- (a) $6 + 0 = \underline{6}$ (b) $5 - 0 = \underline{5}$ (c) $7 \times 0 = \underline{0}$
 (d) $6 \div 1 = \underline{6}$ (e) $7 \times 1 = \underline{7}$ (f) $9 + 0 = \underline{9}$
 (g) $3 \times 1 = \underline{3}$ (h) $1 \times 1 = \underline{1}$ (i) $6 \div 1 = \underline{6}$
 (j) $6 - 6 + 8 = \underline{8}$ (k) $4 + 8 - 8 = \underline{4}$ (l) $a + 4 - 4 = \underline{a}$
 (m) $2 - 2 + k = \underline{k}$ (n) $5 + 4 - 4 = \underline{5}$ (o) $10 + 5 - 1 - 3 = \underline{11}$

(4) Check the following by using inverse operations:

$3 + 4 = 7$	therefore	$7 - 4 = 3$
$12 - 7 = 5$	therefore	$5 + 7 = 12$
$3 \times 4 = 12$	therefore	$12 \div 4 = 3$
$0 \div 6 = 0$	therefore	$0 \times 6 = 0$
BUT		
$3 \div 0 = \square$	and	$0 \times \square = 3$ (<i>Impossible!</i>)
Therefore, dividing by '0' is undefined.		

- | | | |
|--|------------------------------------|--|
| (a) $6 \times 0 \times 24 = \underline{0}$ | (b) $(b) 0 \div 6 = \underline{0}$ | (c) $4 \div 0 = \underline{\text{Undefined}}$ |
| (d) $a + 0 = 0 + a = \underline{a}$ | (e) $4 + 0 + 5 = \underline{9}$ | (f) $12 \div 0 = \underline{\text{Undefined}}$ |
| (g) $3 \times 2 \times 0 = \underline{0}$ | (h) $m \times 0 = \underline{0}$ | (i) $a \div 0 = \underline{\text{Undefined}}$ |
| (j) $6 \times 5 + 0 = \underline{30}$ | (k) $a + 0 = \underline{a}$ | (l) $k - 0 = \underline{k}$ |
| (m) $0 \div 7 = \underline{0}$ | (n) $0 \times 3 = \underline{0}$ | (o) $12 + 0 = \underline{12}$ |

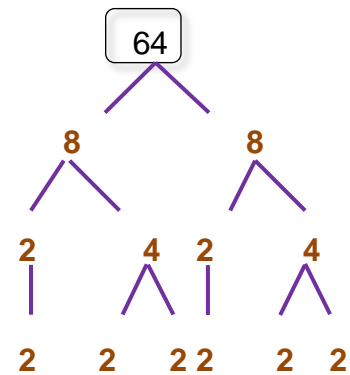
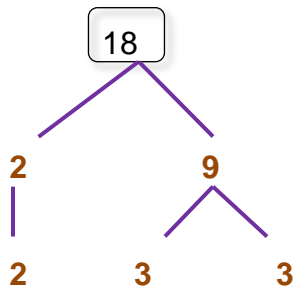
A1.8 REVISION EXERCISE:

Date: _____

- (1) (a) 1 ; 2 ; 3 ; 4 ; 5 are the first five natural numbers..
 (b) 0 ; 1 ; 2 ; 3 ; 4 ; 5 are the first six whole numbers.
 (c) 2 ; 3 ; 5 ; 7 ; 11 are the first five prime numbers.
 (d) Which number is an even number as well as a prime number? 2
 (e) Write the even numbers between 30 and 40 which are also multiples of 3
36
 (f) Write the multiples of 5 between 20 and 40 which are also even numbers.
30

(6)

(2) (a) Use factor trees to determine the prime factors of the following:



Prime factors of 18: 2 ; 3

Prime factors of 64: 2 (2)

(b) What does HCF/GCF stand for? Highest/Greatest Common factor (1)

(c) Determine the factors of the following numbers and write the HCF.

F_{30} : 1 ; 2 ; 3 ; 5 ; 6 ; 10 ; 15 ; 30

F_{48} : 1 ; 2 ; 3 ; 4 ; 6 ; 8 ; 12 ; 16 ; 24 ; 48

HCF(GCF): 6 (1)

(d) Determine the factors of the following numbers and find the HCF.

F_{60} : 1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 10 ; 12 ; 15 ; 20 ; 30 ; 60

F_{45} : 1 ; 3 ; 5 ; 9 ; 15 ; 45

HCF: (GCF): 15 (1)

(e) What does LCM stand for? Lowest common multiple (1)

(f) Determine the multiples and then the LCM of the following numbers:
(Write only the first ten multiples.)

(i) M_7 : 7 ; 14 ; 21 ; 28 ; 35 ; 42 ; 49 ; 56 ; 63 ; 70

M_4 : 4 ; 8 ; 12 ; 16 ; 20 ; 24 ; 28 ; 32 ; 36 ; 40

LCM: 28 (1)

(ii) M_8 :	8 ; 16 ; 24 ; 32 ; 40 ; 48 ; 56 ; 64 ; 72 ; 80	LCM: 24	(1)
M_6 :	6 ; 12 ; 18 ; 24 ; 30 ; 36 ; 42 ; 48 ; 54 ; 60		
(iii) M_9 :	9 ; 18 ; 27 ; 36 ; 45 ; 54 ; 63 ; 72 ; 81 ; 90	LCM: 36	(1)
M_{12} :	12 ; 24 ; 36 ; 48 ; 60 ; 72 ; 84 ; 96 ; 108 ; 120		
(iv) M_3 :	3 ; 6 ; 9 ; 12 ; 15 ; 18 ; 21 ; 24 ; 27 ; 30 ; 33 ; 36	LCM: 12	(1)
M_6 :	6 ; 12 ; 18 ; 24 ; 30 ; 36 ; 42 ; 48 ; 54 ; 60		
M_4 :	4 ; 8 ; 12 ; 16 ; 20 ; 24 ; 28 ; 32 ; 36 ; 40		

(3) Write the answers.

(a) LCM of 12 and 15: 60 (b) HCF of 63 and 84: 21 (2)

(4) Write the answers.

(a) $12 \times 0 \times 2 =$ <u>0</u>	(b) $0 \div 10 =$ <u>0</u>	(c) $3 \div 0 =$ <u>Undefined.</u>
(d) $b + 0 = 0 + b =$ <u>b</u>	(e) $3 + 0 + 5 =$ <u>8</u>	(f) $1 \times 0 =$ <u>0</u>
(g) $7 \div 0 =$ <u>Undefined.</u>	(h) $t \times 0 =$ <u>0</u>	(i) $a \div 0 =$ <u>Undefined.</u>
(j) $2 \times 5 + 0 =$ <u>10</u>	(k) $k + 0 =$ <u>k</u>	(l) $p - 0 =$ <u>p</u>
(m) $0 \div m =$ <u>0</u>	(n) $0 \times 3 =$ <u>0</u>	(o) $4 + 0 =$ <u>4</u>
(p) $4 + 6 \div 0 =$ <u>Undefined.</u>	(q) $3 \times 4 \times 0 =$ <u>0</u>	(r) $a \times 0 =$ <u>0</u>

(18)

(5) Peter wants to buy sweets that he can share equally with his friends if they come to visit him. He is not sure whether 3, 4 or 5 friends will come to visit him. However, he wants to be sure to have enough sweets to divide evenly amongst his friends without any sweets remaining. Calculate the lowest number of sweets that Sarel should purchase. **Show all calculations.** (4)

M_3 : 3 ; 6 ; 9 ; 12 ; 15 ; 18 ; 21 ; 24 ; 27 ; 30 ; 33 ; 36 ; 42 ; 45 ; 48 ; 51 ; 54 ; 57 ; 60

M_4 : 4 ; 8 ; 12 ; 16 ; 20 ; 24 ; 28 ; 32 ; 36 ; 40 ; 44 ; 48 ; 52 ; 56 ; 60

M_5 : 5 ; 10 ; 15 ; 20 ; 25 ; 30 ; 35 ; 40 ; 45 ; 50 ; 55 ; 60

LCM = 60

He has to buy 60 sweets

Possible total: 40

Chapter A2

Place Values

A2.1 Place values and number values:

The table shows the first nine places left of the comma.

PLACE VALUE TABLE									
Billion	HM	TM	M	HTh	TTh	Th	H	T	O
									1
								1	0
							1	0	0
						1	0	0	0
					1	0	0	0	0
			1	0	0	0	0	0	0
		1	0	0	0	0	0	0	0
	1	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0

Exercise 1:

Date: _____

(1) Complete the following:

- | | |
|---------------------------------|-------------------------------------|
| (a) 20 T = <u>200</u> | (b) 12 Th = <u>12 000</u> |
| (c) 38 TTh = <u>380 000</u> | (d) 480 Th = <u>480 000</u> |
| (e) 12 H + 5 T = <u>1 250</u> | (f) 3 T + 12 H + 4 O = <u>1 234</u> |
| (g) 3 TTh + 5 H = <u>30 500</u> | (h) 312 T = <u>3 120</u> |
| (i) 17 Th = <u>17 000</u> | (j) 42 Million = <u>42 000 000</u> |
| (k) 126 H = <u>12 600</u> | (l) 7 H + 3 T + 13 O = <u>743</u> |
| (m) 3 H + 34 Th = <u>34 300</u> | (n) 12 T + 32 H = <u>3 320</u> |

(2) Write the following in expanded notation:

- | | |
|---|---|
| (a) 7 921 = <u>7 000 + 900 + 20 + 1</u> | <div style="border: 2px solid #a52a2a; padding: 10px; transform: rotate(-15deg); display: inline-block;"> There are various possibilities. </div> |
| (b) 7 021 = <u>7 000 + 20 + 1</u> | |
| (c) 100 892 = <u>100 000 + 800 + 90 + 2</u> | |
| (d) 100 001 = <u>100 000 + 1</u> | |
| (e) 909 009 = <u>900 000 + 9 000 + 9</u> | |
| (f) 2 000 111 = <u>2 000 000 + 100 + 10 + 1</u> | |