TGL

Easy Going

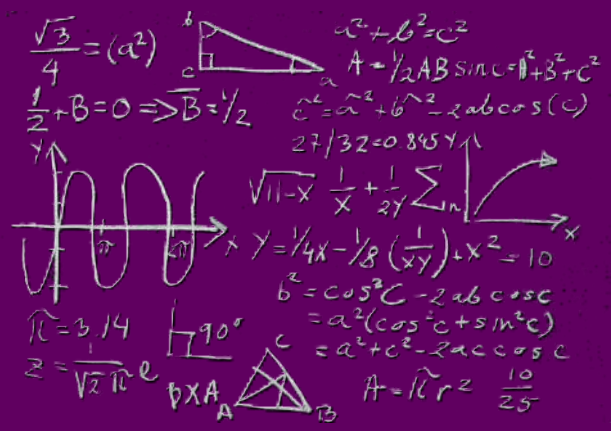
MATHEMATICS

Work Book

YEAR 7

The complete National Curriculum

Over 500 questions.



Work Book

For Year 7

BOOK 1

M.Nat

Practice Makes Perfect

Success at your fingertips

Acknowledgements

First and foremost I would like to thank God who has given me the guidance and knowledge to make this series of book. My heartfelt thanks goes to my family for their tremendous support and encouragement throughout the making of this book.

I express my gratitude towards Saumeya who have provided her valuable time to proof read and design this book . Last but not least I express my gratitude towards my students for their inspiration and progressive feedback which has only led me to improve every maths book of mine..

M.Nat

Copyright © TGL Publishers, 2015, First Edition

All rights reserved. No part of this publication may be reproduced, transmitted or used in any form or by any means, electronic or mechanical, including photocopying, recording or any information storage or retrieval system, without the prior written permission of the publisher.

Published by TGL Publishers, 101A Blyth Road, Hayes, UB3 1DB

www.leceducation.com

M.Nat BSc, BEd, P.G.C.E Diploma in computer programming, Diploma in supervisory Management

Year 7 Workbook

More than **500** questions included

Mr M. Nat

CONTENT PAGE

Chapter 1 Whole Numbers

Word and digital numerals ---- page 4
Word to number ---- page 5
Number sequences ---- page 7
The four operations - Addition ---- page 9
The four operations - Subtraction ---- page 11
The four operations - Multiplication ---- page 13
The four operations - Division ---- page 14
Order of operations ---- page 16
Problem solving ---- page 18

Chapter 2 Shapes

Angles ---- page 21
Triangles, quadrilaterals and polygons ---- page 22
Properties of angles and parallel lines ---- page 22
Axis of symmetry and rotational symmetry ---- page 26
Type of triangles ---- page 31
Types of quadrilateral ---- page 32
Solids ---- page 35

Chapter 3 Algebra

Collecting like terms ---- page 36
Algebraic Rules ---- page 38
Equations ---- page 40
Expanding the brackets and simplify ---- page 42
Substitution ---- page 44
Index Laws ---- page 46
Problem solving ---- page 48

Chapter 4 Fractions

Equivalent fractions ---- page 49
Cancelling fractions ---- page 51
Proper fractions, improper fractions and mixed numbers ---- page 53
Addition and subtraction of fractions ---- page 55
Multiplication of fractions ---- page 57
Division of fractions ---- page 59

Whole Numbers

Chapter 1

Exercise 1A

Word and digit numerals

Q1 **Write the following numbers in words.**

a) 27 _____

b) 35 _____

c) 141 _____

d) 145 _____

e) 2056 _____

f) 8005 _____

g) 10512 _____

h) 9815 _____

i) 8016 _____

j) 10646 _____

Q2 **Write in words.**

a) 1300 _____

b) 45416 _____

c) 25476 _____

d) 99418 _____

e) 7566 _____

f) 11216 _____

g) 67708 _____

h) 77777 _____

i) 65451 _____

j) 76071 _____

Q3 **Write each of these large numbers in words.**

a) 302444 _____

b) 255312 _____

c) 745210 _____

d) 846346 _____

e) 9346 _____

f) 22782 _____

g) 43565 _____

h) 212386 _____

i) 4890 _____

j) 92780 _____

Exercise 1B

Word to number

Q1 **Write each of the following in numbers.**

a) Five hundred and thirty four _____

b) Three million one hundred and fifty thousand _____

c) Nine hundred and seventy five _____

d) One thousand nine hundred and sixteen _____

e) Seven thousand five hundred and eighty _____

f) Nine thousand seven hundred and one _____

g) Six thousand one _____

h) Sixty seven thousand three hundred _____

i) Two hundred and ninety nine thousand nine hundred and ninety _____

j) Forty one thousand _____

Q2 **Write each of the following in numbers.**

a) One million and seventy five _____

b) Three million one hundred and fifty thousand _____

c) Seventy seven million nine hundred and ten thousand _____

d) Two hundred and one million _____

e) Fourteen thousand seven hundred and fifty _____

f) Seventy seven thousand eight hundred _____

g) Thirty eight thousand and two hundred _____

h) One million and seventy four _____

i) Sixty seven million nine hundred and ten thousand _____

j) Seven million four hundred and fifty two thousand _____

Q3 Write in number form.

a) Two thousand six hundred and ten _____

b) Eight thousand fifty _____

c) Seventy five thousand _____

d) Twenty four million _____

e) Seven hundred and four thousand four hundred _____

f) Three hundred and four thousand five hundred _____

g) Three and a half million _____

h) Eight thousand two hundred and thirty _____

i) Fifty five thousand four hundred and forty _____

j) Eight thousand four hundred _____

Exercise 1C

Number sequences

Q1 For the following number sequences write the next three numbers.

a)	27	29	31	33	_____	_____	_____
b)	16	21	26	31	_____	_____	_____
c)	7	14	21	28	_____	_____	_____
d)	2	4	8	16	_____	_____	_____
e)	-3	1	5	9	_____	_____	_____
f)	1	3	9	27	_____	_____	_____
g)	0	1	1	2	_____	_____	_____
h)	75	72	69	66	_____	_____	_____
i)	15	20	25	30	_____	_____	_____

j)	-7	-5	-3	-1	_____	_____	_____
k)	5	4	3	2	_____	_____	_____
l)	14	_____	10	_____	6	4	_____
m)	7	9	_____	_____	15	_____	19
n)	100	98	_____	_____	92	_____	88

Q2 Complete the following.

a)	1	4	8	16	_____	_____	_____
b)	1	8	27	64	_____	_____	_____
c)	2	3	5	8	_____	_____	_____
d)	1	3	5	7	_____	_____	_____
e)	10	20	30	40	_____	_____	_____
f)	48	42	36	30	_____	_____	_____
g)	1600	800	400	200	_____	_____	_____
h)	1	4	9	16	_____	_____	_____
i)	1	3	6	10	_____	_____	_____
j)	8400	8700	9000	9300	_____	_____	_____
k)	20	19	18	17	_____	_____	_____
l)	11	13	15	17	_____	_____	_____
m)	8	17	32	53	_____	_____	_____
n)	19	26	33	40	_____	_____	_____

Q3 The first number and the rule are given. Use these to write the next four digits.

a)	2 ; add 4	_____	_____	_____	_____
b)	20 ; add 5	_____	_____	_____	_____

c) 3 ; multiply by 2 and add 1 _____ _____ _____ _____

d) 856 ; divide by 2 _____ _____ _____ _____

e) 2 ; square it _____ _____ _____ _____

f) 5 ; multiply by 2 add 5 _____ _____ _____ _____

g) 7500 ; divide by 5 _____ _____ _____ _____

h) 100 ; divide by 5 _____ _____ _____ _____

i) 7 ; add 2 _____ _____ _____ _____

j) 8 ; subtract 1 _____ _____ _____ _____

k) 10 ; subtract 2 _____ _____ _____ _____

l) 15 ; add -1 _____ _____ _____ _____

m) 17 ; multiply by 2 _____ _____ _____ _____

n) 3 ; add -2 _____ _____ _____ _____

Exercise 1D

The four operation - Add

Q1 **Add the following.**

a) 30 + 40 + 50 = _____

b) 600 + 800 + 900 = _____

c) 210 + 90 = _____

d) 350 + 150 = _____

e) 400 + 250 = _____

f) 700 + 600 = _____

g) 400 + 300 + 150 = _____

h) 200 + 700 = _____

i) 150 + 150 = _____

j) 600 + 150 + 250 = _____

Q2 Add these.

a) 450 + 250 = _____

b) 410 + 90 + 213 = _____

c) 650 + 60 + 252 = _____

d) 781 + 219 = _____

e) 431 + 229 = _____

f) 8610 + 7400 = _____

g) 135 + 261 = _____

h) 780 + 240 = _____

i) 640 + 160 = _____

j) 780 + 120 = _____

Q3 Find the sum of the following :

a)
```
   70
+  50
-----
-----
```

b)
```
   80
+  40
-----
-----
```

c)
```
   95
+  56
-----
-----
```

d)
```
  865
+ 372
-----
-----
```

e)
```
  919
+ 129
-----
-----
```

f)
```
  275
+ 175
-----
-----
```

g)
```
  222
+ 343
-----
-----
```

h)
```
  785
+ 138
-----
-----
```

i)
```
  276
+ 176
-----
-----
```

Q4 Complete the following additions.

a) 267
222
+ 343
_____
_____

b) 765
265
+ 105
_____
_____

c) 705
395
+ 287
_____
_____

d) 8695
292
+ 1482
_____
_____

e) 9122
1622
+ 385
_____
_____

f) 4723
3622
+ 1022
_____
_____

g) 3654
278
+ 365
_____
_____

h) 2728
488
+ 98
_____
_____

i) 2859
1039
+ 139
_____
_____

j) 9465
1267
+ 766
_____
_____

k) 7005
3996
+ 2234
_____
_____

Exercise 1E

Four Operation - Subtraction

Q1 Subtract the following :

a) 70 - 30 = _____

b) 800 - 270 = _____

c) 3200 - 800 = _____

d) 950 - 150 = _____

e) 4900 - 500 = _____

f) 2000 - 500 = _____

g) 750 - 250 = _____

h) 340 - 110 = _____

i) 470 - 170 = _____

j) 770 - 270 = _____

Q2 Find the difference in the following :

a) 295 - 112 = _____

b) 1738 - 1212 = _____

c) 8674 - 472 = _____

d) 1865 - 336 = _____

e) 1840 - 420 = _____

f) 496 - 212 = _____

g) 4360 - 560 = _____

h) 485 - 185 = _____

i) 7460 - 1460 = _____

j) 8432 - 431 = _____

Q3 Subtract the following :

a) 89
- 32
_____
_____

b) 98
- 31
_____
_____

c) 485
- 185
_____
_____

d) 743
- 131
_____
_____

e) 447 -
- 127
_____
_____

f) 786 -
- 183
_____
_____

g) 6842 -
- 1842
_____
_____

h) 313 -
- 73
_____
_____

i) 423 -
- 153
_____
_____

j) 787 -
- 187
_____
_____

Q4 Do the following subtractions :

a) 28475
- 19898
_____
_____

b) 32495
- 28326
_____
_____

c) 42586
- 32489
_____
_____

d) 6756
- 358
_____
_____

e) 15489
- 9588
_____
_____

f) 12946
- 11057
_____
_____

g) 26489
- 18589
_____
_____

h) 98876
- 74987
_____
_____

i) 89985
- 69283
_____
_____

j) 48906
- 35908
_____
_____

Exercise 1F

Four Operations: Multiplication

Q1 Write each of these numbers in words.

a) 7 x 8 = _____

b) 12 x 13 = _____

c) 240 x 11 = _____

d) 120 x 9 = _____

e) 25 x 12 = _____

f) 300 x 17 = _____

g) 710 x 30 = _____

h) 9390 x 9 = _____

i) 75 x 9 = _____

j) 80 x 9 = _____

Q2 Complete the following multiplications

a) 46
x 3
_____
_____

b) 464
x 9
_____
_____

c) 768
x 12
_____
_____

d) 934
x 5
_____
_____

e) 848
x 9
_____
_____

f) 928
x 9
_____
_____

g) 1012
x 9
_____
_____

h) 7858
x 12
_____
_____

i) 9808
x 7
_____
_____

j) 2015
x 5
_____
_____

Q3 **Multiply the following. (Do all the working out in your exercise books)**

a) 78
x 23
_____
_____

b) 128
x 48
_____
_____

c) 248
x 29
_____
_____

d) 195
x 25
_____
_____

e) 723
x 122
_____
_____

f) 49
x 29
_____
_____

g) 928
x 28
_____
_____

h) 729
x 32
_____
_____

i) 848
x 45
_____
_____

j) 735
x 28
_____
_____

Exercise 1G

Four Operations: Division

Q1 **Write the answer to each division.**

a) 45 ÷ 9 = _____

b) 72 ÷ 8 = _____

c) 176 ÷ 8 = _____

d) 148 ÷ 4 = _____

e) 140 ÷ 7 = _____

f) 200 ÷ 5 = _____

g) 92 ÷ 2 = _____

h) 121 ÷ 11 = _____

i) 625 ÷ 5 = _____ j) 42 ÷ 3 = _____

Q2 Divide the following :

a) 3) 75 _____ b) 5) 95 _____

c) 4) 44 _____ d) 4) 72 _____

e) 2) 54 _____ f) 4) 64 _____

g) 9) 108 _____ h) 5) 145 _____

i) 15) 225 _____ j) 2) 76 _____

Q3 Divide the following. (Do all the working out in your exercise books)

a) 48) 428 _____ b) 42) 728 _____

c) 25) 345 _____ d) 48) 1848 _____

e) 32) 878 _____ f) 28) 946 _____

g) 42) 878 _____ h) 23) 445 _____

i) 28) 921 _____ j) 27) 747 _____

Exercise 1H

Order of Operations

Q1 Simplify the following :

a) (3 + 8) - 11 _____

b) 18 - (5 + 4) _____

c) 22 - (3 x 4) _____

d) (8 + 3) x (14 - 3) _____

e) 75 - 25 - 12 - 3 _____

f) (42 + 13) ÷ (13 - 2) _____

g) (8 x 8) + 3 + 5 _____

h) (8 + 11) + (3 + 7) _____

i) (9 + 12) - (3 x 4) _____

j) (8 + 3) - (12 - 3) _____

Q2 Find the answers to the following :

a) 16 x (9 - 4) ÷ (15 - 5) _____

b) 140 ÷ { 12 + [(4 x 5) - 18] } _____

c) 68 - 3 (18 - 5) + 32 _____

d) 99 ÷ (12 - 9) x 3 _____

e) 400 - [16 + (2 x 4) ÷ 4] _____

f) 10 x (32 + 28) ÷ 4 _____

g) [48 - (2 x 7) - (18 ÷ 2)] _____

h) 45 - 3 (3 + 5) - (15 ÷ 3) _____

i) [(12 + 8) ÷ 4] _____

j) 7 x 2 ÷ 2 - (7 + 3) _____

Q3 Use the rules for the order of operations to simplify the following.

a) 50 x [(48 ÷ 8) x 3] - 14 _____

b) 85 + [(18 ÷ 6) + (64 ÷ 4)] x 5 _____

c) [(48 + 12) ÷ 5] x 7 _____

d) 18 x [(5 x 25) x (17 - 14)] _____

e) 6 + 8 x 4 - 36 ÷ 9 _____

f) [(9 + 21) x (31 - 15) ÷ 12] _____

g) 50 x [(48 ÷ 8) x 3] - 14 _____

h) [(6 + 4) x (28 - 13) ÷ 3] _____

i) [(12 + 18) ÷ 6 - 5] _____

j) (8 + 7) x 2 - (64 ÷ 8) _____

Q4 Insert the grouping symbols to make the following statements true.

a) 12 + 6 - 8 x 2 = 20

_____

b) 3 + 8 x 7 - 4 x 3 = 65

_____

c) 6 + 8 x 4 - 36 ÷ 9 = 52

_____

d) 200 - 15 + 2 x 3 ÷ 6 = 184

_____

e) 18 ÷ 6 + 7 = 10

_____

f) 10 + 12 ÷ 11 + 2

_____

g) 25 - 3 x 5 = 112

_____

h) 7 + 5 - 1 = 11

_____

i) 22 ÷ 2 + 9 - 7 = -5

_____

j) 72 ÷ 36 - 12 + 7 = 10

_____

Exercise 1I

Problem Solving

Q1 **Solve these questions. (Calculator not allowed)**

a) Peter has £20. He spends £7.25. How much does he have left ?

_____

b) Eight sweets weigh a total of 56 grams. What is the weight of each sweet ?

_____

c) Subtract 14 from 67 and then multiply by 7

_____

d) The price of a TV is reduced from £705 to £155. How much is the reduction ?

_____

e) What is the total cost of eight packs of chicken burgers at £1.50 each ?

_____

f) Add 78 and 32, then multiply the answer by 8

_____

g) Glasses are packed in boxes of 7. How many boxes are needed for 420 glasses ?

_____

h) Rose has £18.50. She earns £6.50 but spends £ 8.50. How much does she have left ?

_____

i) Dog food is packed in boxes, each of which contains 20 cans. How many cans are there in 12 boxes ?

_____

j) Add 136 and 114, and then divide by 5

_____

Q2 **Find the answers to the following. (Calculators are allowed)**

a) Rani has £435.06 in her bank account. How much will she have left if she pays her electricity bill for £252.02 ?

_____

b) There are 16 books in each pack in a shop. How many packs are required in order to have at least 240 books .

_____

c) An aeroplane has seats for 132 passengers. There are 49 empty seats. How many passengers are there ?

_____

d) What is the total cost of 18 cans of coke at 38p per can ?

_____

e) Jana earns £147.18 but has to pay out £43.62. How much does she have left ?

_____

f) Discs are packed in boxes of 13. How many boxes can be filled from a case of 520 discs ?

_____

g) How much medicine is left in a bottle which contained 420ml if 135ml has been used ?

_____

h) There are 300 tins in the stove. Aran puts 144 of these on the shelves. How many tins remain ?

_____

i) Decorations are packed in boxes of 15. How many boxes can be filled from a case of 200 ?

_____

j) There are 17 pencils in each box. How many boxes are required in order to have at least 680 pencils ?

_____

Shapes, Plane and Solid

Chapter 2

Exercise 2A

Angles

Q1 **Draw the following :**

An acute angle

An obtuse angle

A reflex angle

A right angle

A straight angle

Vertically opposite angle

Alternate angle

Corresponding angle

Exercise 2B

Triangles, Quadrilaterals and Polygons

Q1 **Complete the following table :**

	Number of sides	Name of the shape
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		

Exercise 2C

Properties of angles and parallel lines

Q1 Complete the following sentences :

a) An acute angle is less than _____

b) A right angle is equal to _____

c) An obtuse angle is greater than _____ but less than _____

d) A straight angles is equal to _____

e) A reflex angle is greater than _____ but less than _____

f) A revolution is equal to _____

g) Vertically opposite angles are _____

h) Complimentary angles add up to _____

i) The angle sum of a triangle is equal to _____

j) The angle sum of a quadrilateral is equal to _____

If two parallel lines are intersected by another line ……..

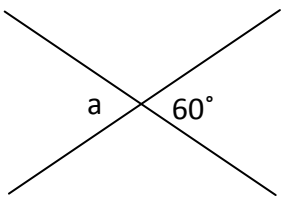
k) The alternate angles are _____

l) The corresponding angles are _____

m) The co - interior angles are added up to _____

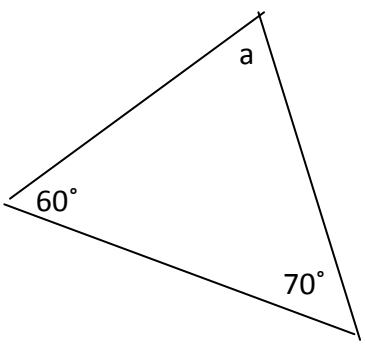
Q2 **Find the unknown angles names by letters.**

a)



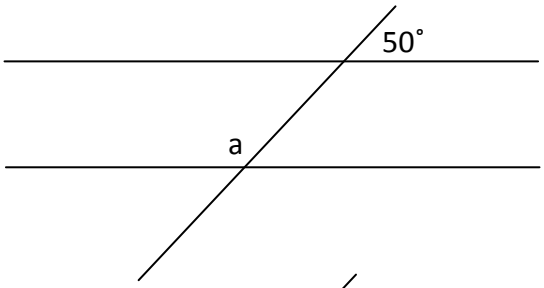
a = _____

b)



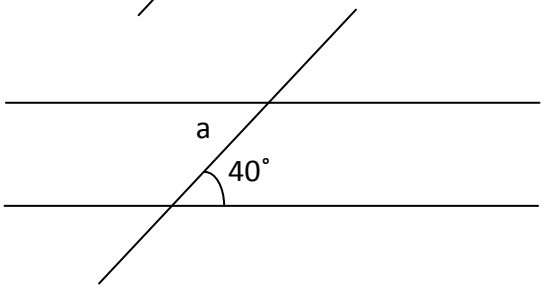
a = _____

c)



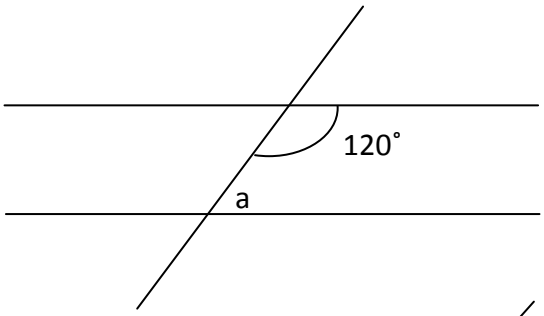
a = _____

d)



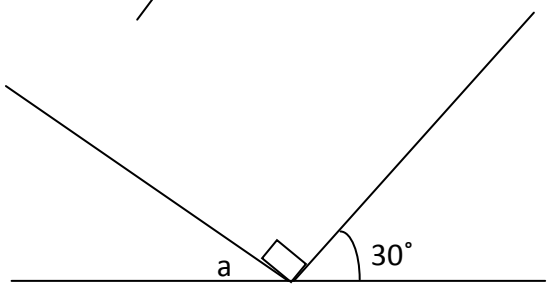
a = _____

e)



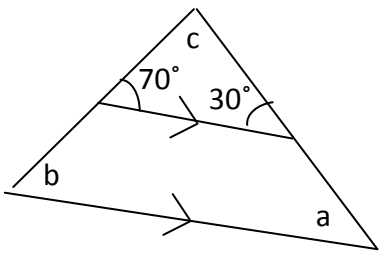
a = _____

f)



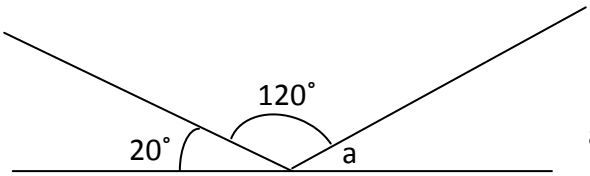
a = _____

g)



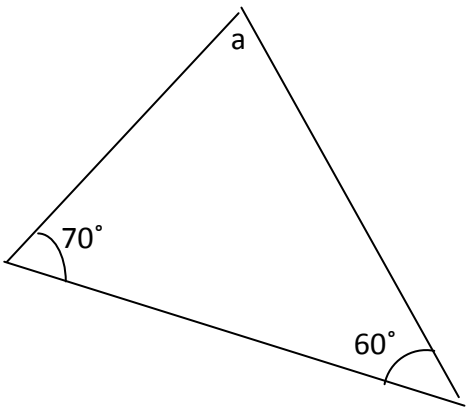
a = _____

h)



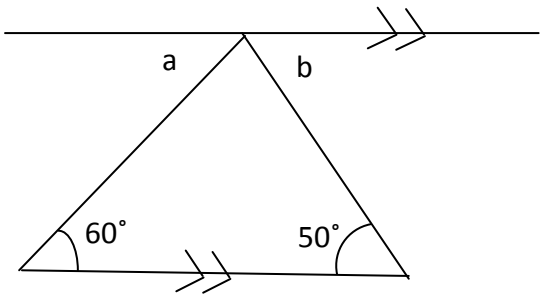
a = _____

i)



a = _____

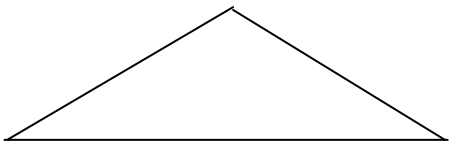
j)



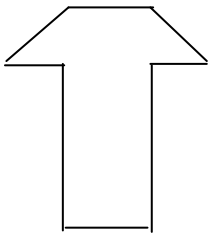
a = _____

Q1 **How many axes of symmetry do the following shapes have ?**

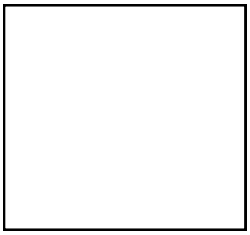
a)



b)

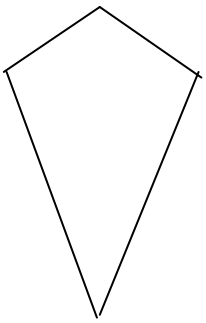


c)

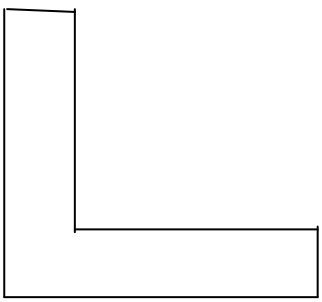


d)

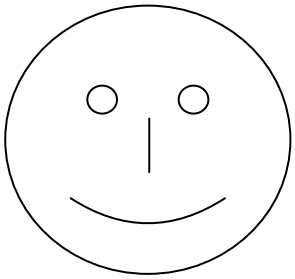
e)



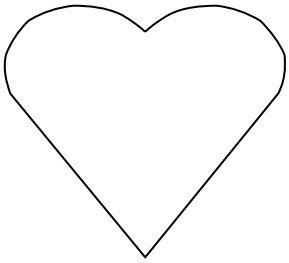
f)



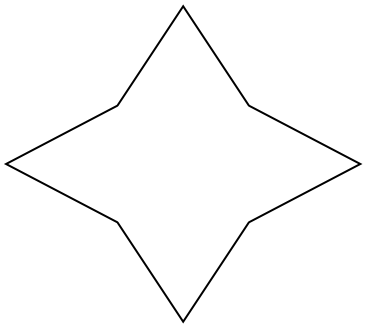
g)



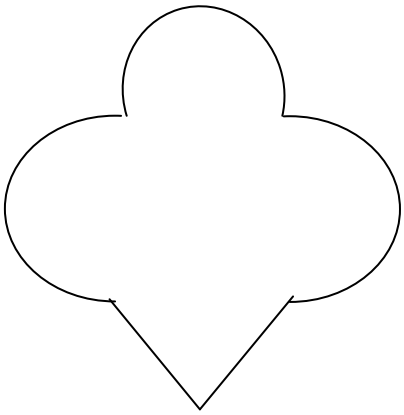
h)



i)

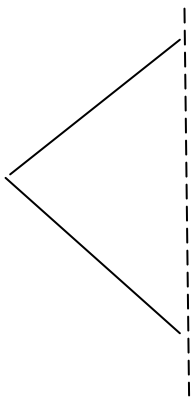


j)

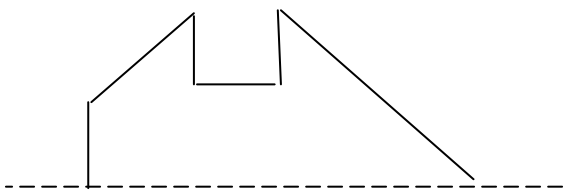


Q2 **Complete the following half pictures. The dotted line is the axis of symmetry.**

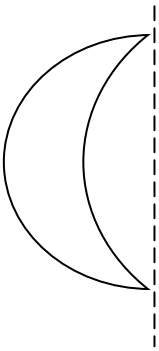
a)



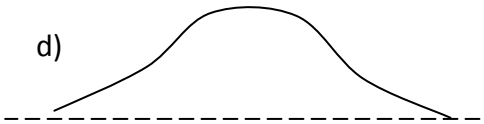
b)



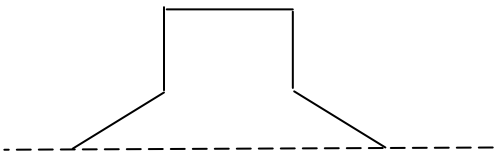
c)



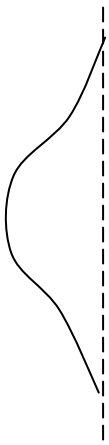
d)



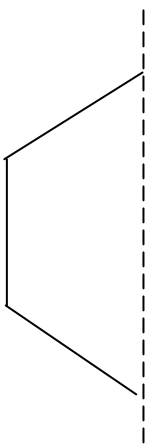
e)



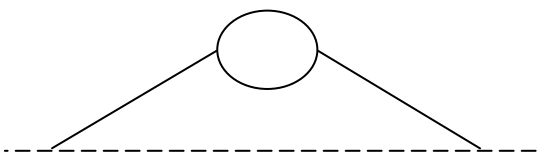
f)



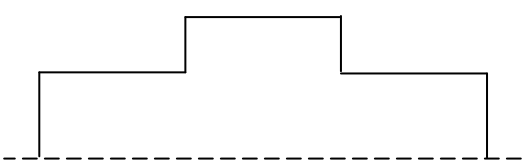
g)



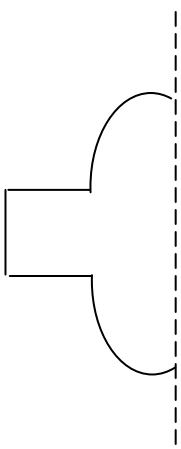
h)



i)

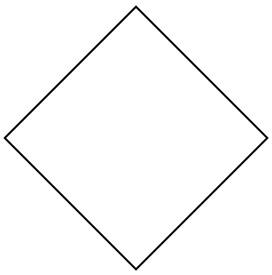


j)



Q3 **Which of the following shapes have rotational symmetry ? (The number of times a shape fits on top of itself as it turns through one revolution about a point - the centre of rotation is called the order of rotation)**

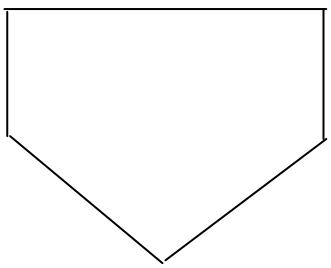
a)



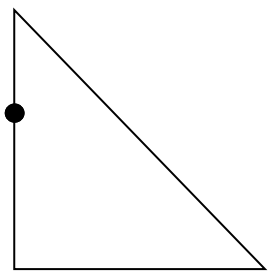
b)

c)

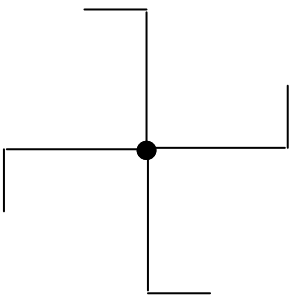
d)



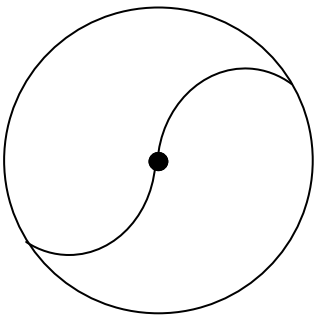
e)



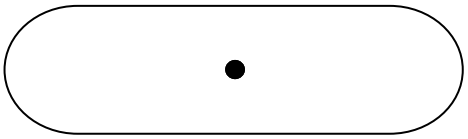
f)



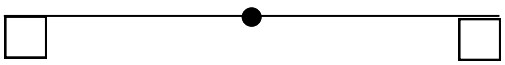
g)



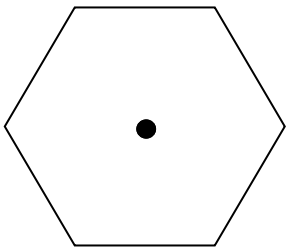
h)



i)



j)



Exercise 2E

Types of Triangles

Q1 Complete the following sentences :

a) An equilateral triangle is a triangle in which _____ sides are equal .

b) An isosceles triangle is a triangle in which _____ sides are equal.

c) A scalene triangle is a triangle in which _____ sides are equal.

d) An acute - triangle has _____ angles acute.

e) An obtuse - angled triangle has _____ obtuse angle.

f) A right angled triangle has _____ right angle.

g) The interior angles of an equilateral triangle are _____

h) The base angles of an equilateral triangle are _____

i) The angle sum of a triangle is _____

j) A triangle has all angles of equal size. The size of each angle is _____

Q2 Fill the table :

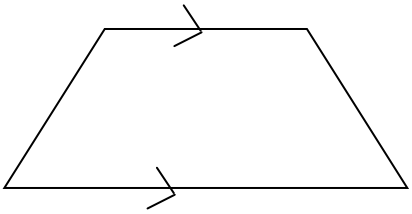
	Name of triangle	Diagram	Number of equal	Number of axes of sum	Angle sum
a	Equilateral				
b	Isosceles				
c	Scalene				
d	Acute - Angle				
e	Right - Angle				
f	Obtuse - Angle				

Exercise 2F

Types of Quadrilateral

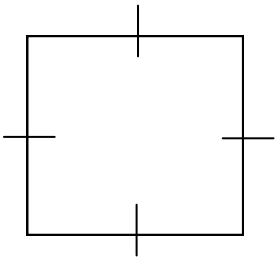
Q1 **Name the following quadrilaterals :**

a)



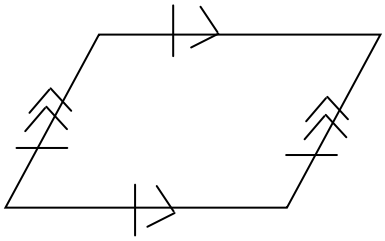
_____

b)



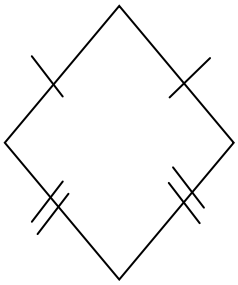
_____

c)



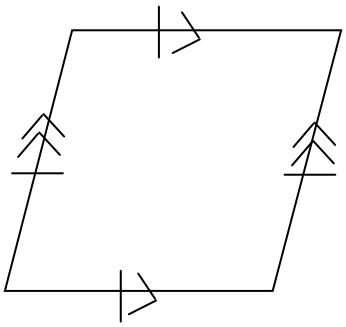
_____

d)



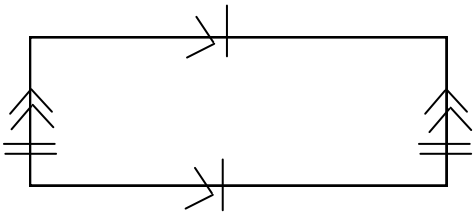
_____

e)



_____

f)



_____

Q2 Complete the following :

a) The opposite sides are equal in _____, _____ and _____

b) The opposite sides are parallel in, _____, _____, _____ and _____

c) The opposite angles are equal in _____, _____, _____, _____ and _____

d) d) Each angle is 90 in _____ and _____

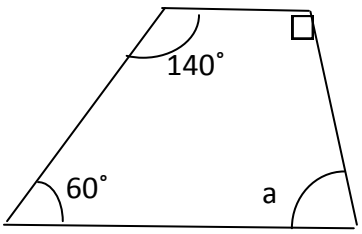
e) Diagonals are equal in _____

f) Diagonals bisect each other at 90˚ is _____

g) All sides are equal in _____, _____

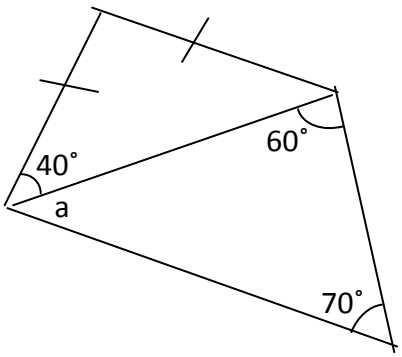
Q3 Work out the angle with the letter :

a)



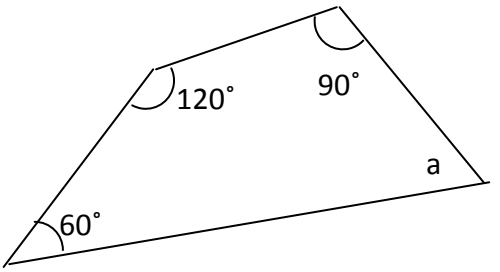
a = _____

b)



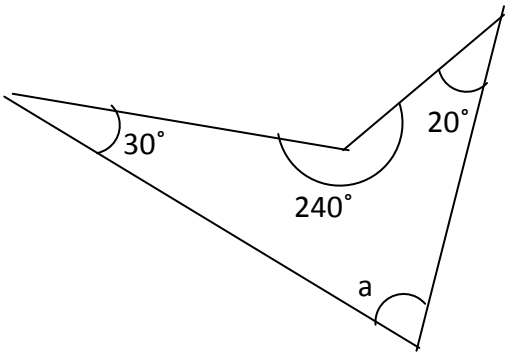
a = _____

c)



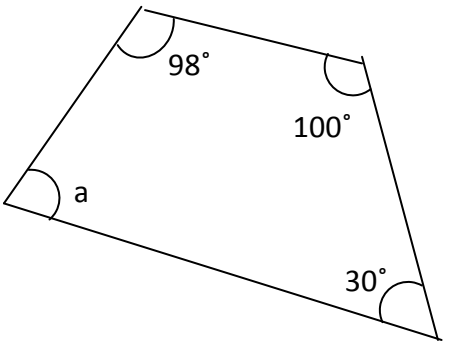
a = _____

d)



a = _____

e)



a = _____

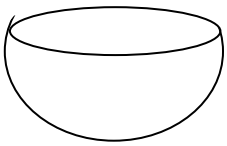
Q1 Complete the following statements.

a) Solids that have only square faces are _____

b) Solids that have rectangular faces are _____

c) Solids with some triangular faces are _____

d) Solids with circular faces are _____



e) Name the solid _____

f) How many surfaces does it have _____

g) How many flat surfaces does it have _____

h) How many curved surfaces does it have _____

i) How many vertices does it have _____

j) How many edges does it have _____

Q2 Complete the following sentences :

a) A triangular prism has _____ faces.

b) A cylinder has _____ circular faces

c) A square pyramid has _____ edges

d) A Coin has _____ faces

e) A triangular prism has _____ vertices

Algebra

Chapter 3

Exercise 3A

Collecting like terms

Q1 **Collect like terms to simplify the following :**

a) a + 5a+ 6a _____

b) 5a - 2a _____

c) d + 4d + 2d _____

d) 7a + 5a + 2a _____

e) a + 4b + 2a _____

f) x + 2y - 2x _____

g) 7a + 2a + b _____

h) 9a + 5a + 4b _____

i) $x + x + x + x$ _____

j) 2y + x + y + x _____

Q2 **Simplify :**

a) 2x + 2x _____

b) y + y + y _____

c) x + x + 2y - x + 3y _____

d) 6p -3p + 7g + 6g _____

e) 9x - 4y + 2x + 5y _____

f) 8m + 9n + 6m - 3n _____

g) 8x + 7y +10x - 5y - 2y _____

h) 9h - h - 7h - 2h _____

i) 4x + 9y + 6x - 3y _____

j) xy + 5y + 4xy _____

Q3 **Collect like terms and simplify :**

a) $ab - 2ab + ab + ac$ _____

b) $9x^2 + 2xy^2 + x^2y$ _____

c) $18xy3 + 6x + 4xy3 - 5x$ _____

d) $2a^3 + 4a^3 - 3b^3 + 7b^3$ _____

e) $7x^2 + 12x^2 - 4x^2$ _____

f) $14abc + 7abc - 4abc$ _____

g) $14a^2 + 2b^2 - 7a^2 + 5b^2$ _____

h) $7a^2b$ _ $7ab^2 - 3ab^2 + 4a^2b$ _____

i) $2p^2q - 3p^2q + 5p^2q + 7p^2q$ _____

j) $7a^3 + 4b^3 - 2a^3 + 7b^3$ _____

k) $5x^2 + 4x + 7x^2$ _____

l) $9a^2 + 2a^3 + 3b^2 + a^2$ _____

m) $12xy^2 + 4x^2y + 3xy^2 - 9x^2y$ _____

n) $7xtz + 8x^2yz + 2xyz + 3x^2yz$ _____

o) $2xy^2 - 3x^2y + 4xy^2 - 2x^2y$ _____

p) $10x^3y - 2x^3y + 7x^2y + x^3y$ _____

q) $-7xy + 8x^2y + 3xy + 2x^2y$ _____

r) $9x^2y + 3pq + 2x^2y + 2pq$ _____

s) $7p^2y + 2py - 8p^2y + 7py$ _____

$5 \times a = 5a$ $\qquad$ $5 \div a = \frac{5}{a}$ $\qquad$ $5 \times (a = b) = 5(a + b)$

Q1 Write the following expressions without multiplication or division signs.

a) $2 \times 3 \times x$ _____

b) $8 \times y \times 4$ _____

c) $7x(a - 5)$ _____

d) $3 \times y \times 7$ _____

e) $7a \div 4$ _____

f) $9x \div (2x + 3)$ _____

g) $4 \times x - 6$ _____

h) $7 \times x \div 3$ _____

i) $7x \div (4a + 3)$ _____

j) $9 \times 9 - 3$ _____

k) $(x + 3) \div (x + 3)$ _____

l) $7x \div 3$ _____

m) $9x \div (x + 3)$ _____

n) $4 \times p \times q$ _____

o) $7 \times p \div q$ _____

Q2 Write the following expressions by showing all multiplication or division sign.

a) $5x$ _____

b) $5(x - 2)$ _____

c) $\frac{4y}{3}$ _____

d) $\frac{7}{x}$ _____

e) $\frac{3}{x - 2}$ _____

f) $5x^2 + 3$ _____

g) $a^2 - a$ _____

h) $\frac{5a^2}{3}$ _____

i) $17abc$ _____

j) $8x - 3y$ _____

Q3 **Write the following in a shortened form :**

a) $5 \times x \times y \times y \times x$ _____

b) $9 \times p \times p \times p$ _____

c) $(a - 2) \times (a - 4)$ _____

d) $x \times x \times x \times a$ _____

e) $a \times b \times c \times d$ _____

f) $5 \times x \times (y + 4)$ _____

g) $4 \times 5 \times (x - 4)$ _____

h) $(2xy + 1) \times (3xy - 2)$ _____

i) $7 \times x \times x \times y$ _____

j) $(x - 5) \times (x - 5) \times y$ _____

k) $x \times (x + 7) \times (x)$ _____

l) $p \times q \times q \times p$ _____

m) $7 \times a \times b \times c$ _____

n) $9 \times a \times b \times c \times p$ _____

o) $(x + 4) \times (x + 4) \times y$ _____

p) $(x + 7) \times x \times x$ _____

Exercise 3C

Equations

Q1 **Solve the equations :**

a) $x + 7 = 12$

b) $x + 10 = 15$

c) $x - 7 = 20$

d) $x - 8 + 20$

e) $5 - x = 1$

f) $7 + x = 13$

g) $15 - x = 8$

h) $x + 16 = 20$

i) $x + 8 = 11$

j) $x + 7 = 9$

k) $3 + a = 7$

l) $7 - x = 21$

m) $x + 2 = 20$

n) $x - 9 = 2$

o) $x + 15 = 30$

p) $16 - x = 22$

q) $17 - x = 20$

r) $2 - x = 14$

Q2 **Solve the equations :**

a) $\frac{x}{7} = 5$

b) $\frac{x}{8} = 2$

c) $\frac{x}{8} + 1 = 9$

d) $\frac{x}{5} - 1 = 9$

e) $\frac{x}{10} - 1 = 8$

f) $\frac{2x}{3} = 10$

g) $\frac{2x}{5} = 4$

h) $\frac{x}{8} = 2$

i) $\frac{3x}{2} = 6$

j) $\frac{x}{11} = 2$

k) $\frac{x}{12} = 3$

l) $\frac{2x}{7} = 4$

m) $\frac{x}{3} = 18$

n) $\frac{x}{6} = 5$

Exercise 3D

Expanding the brackets and simplify

Q1 **Expand the brackets.**

a) $2(x+3)$

b) $3(x-5)$

c) $4(x-1)+2$

d) $5(x-5)$

e) $3(x-2)-5$

f) $5(x+1)+2(x-1)$

g) $7(x+4)-6$

h) $2(x-1)-7$

i) $2(x-5)-3(x-1)$

j) $x-7+2(x+2)$

k) $10(x+7)$

l) $5(x-5)-17$

m) $2(x+1)-3$

n) $3(x-8)+24$

Q2 Expand the brackets. and simplify.

a) $7(x-3y)$

b) $9(x-7y)$

c) $p(4p-9)$

d) $19(a+2b)$

e) $10(2a-3b)$

f) $3m(4m-3n)$

g) $6(6x - 4y)$

h) $-3(4x - 3y)$

i) $xy(x^2 - y^2)$

j) $9a(a^2 + b^2)$

k) $xy(x - y)$

l) $x^6(x^2 - y)$

m) $x^2y^2(x - y)$

n) $pq(p^2 - q^2)$

Exercise 3E

Substitution

Q1 **If x = 3 , find the value of each expression :**

a) $9x$ _____ b) $7x + 1$ _____

c) x^4 _____ d) $x^2 - 1$ _____

e) $2x^2 - 1$ _____ f) $(x + 2)^2$ _____

g) $x^2 + x$ _____ h) x^4 _____

i) $2x(x + 1)$ _____ j) $x^3 - 1$ _____

Q2 **If x = 2 , y = 1, z = 3 and p = 5, find the value of each of the following expres-**

a) $xy + z$ _____ b) $xp + yz$ _____

c) $xy - z$ _____ d) $xp + xz + yz$ _____

e) $x^2y - p$ _____ f) $2x^2y - p^2$ _____

g) $x^3z - xy$ _____ h) $x^2p^2 - y^2z^2$ _____

i) $xyz - p$ _____ j) $xyp - z$ _____

Q3 **Complete the following :**

a) $y = x + 3$

x	1	2	3	4	5	6
y						

b) $y = 2x - 3$

x	1	2	3	4	5	6
y						

c) $y = 10 - 2x$

x	1	2	3	4	5	6
y						

d) $p = 2q - 1$

q	1	2	3	4	5	6	7
p							

e) $m = 3n - 1$

n	1	2	3	4	5	6
m						

Q4 Complete the table :

	m	n	m + n	m - n	mn	m^2	n^2	3m + 4n
a	2	3						
b	3	4						
c	4	5						
d	5	6						
e	6	7						
f	7	8						
g	8	9						
h	9	10						
i	10	9						
j	9	8						
k	8	7						
l	7	6						
m	6	5						
n	5	4						
o	4	3						
p	3	2						

Q1 Write each of the following in the simplest index form :

a) $x \times x \times x$ _____ b) $m \times m \times m \times m$ _____

c) $n \times n$ _____ d) $x \times x \times m \times m$ _____

e) $p \times p \times p \times p \times p$ _____ f) $x \times x \times x \times p \times p \times p$ _____

g) $y \times y \times y \times y \times y \times y$ _____ h) $y \times y \times y$ _____

i) $y \times y \times n \times n \times x \times x \times x$ _____

j) $y \times y \times y \times p \times p \times x \times p \times n \times n$ _____

Q2 Write each of the following in expanded form :

a) x^6 _____ b) x^8 _____

c) $2x^3$ _____ d) x^2y^2 _____

e) $x^3y^2z^2$ _____ f) $5x^2y^2$ _____

g) $14b^2$ _____ h) $17y^3$ _____

i) $4a^3b^2$ _____ j) $5x^2y^3z^4$ _____

Q3 Simplify the following, writing your answer in index form. ($a^m \times a^n = a^{m+n}$)

a) $2^4 \times 2^2$ _____ b) $m^3 \times m^7$ _____

c) $2m^3 \times m^2$ _____ d) $x^7 \times x^2 \times x^4$ _____

e) $p^5 \times p^3$ _____ f) $m^8 \times m^3$ _____

g) $x^{10} \times x^{12}$ _____ h) $y^7 \times y^8$ _____

i) $3^{10} \times 3^4$ _____ j) $2^{10} \times 2^{15}$ _____

Q4 Simplify the following and leave the answers in index form. ($a^m \div a^n = a^{m-n}$)

a) $m^x \div m^y$ _____

b) $x^6 \div x^2$ _____

c) $x^{11} \div x^{10}$ _____

d) $p^8 \div p^7$ _____

e) $p^8 \div p^1$ _____

f) $y^7 \div y^2$ _____

g) $m^{25} \div m^{21}$ _____

h) $n^{16} \div n^5$ _____

i) $p^7 \div p^0$ _____

j) $m^{10} \div m^1$ _____

Q5 Simplify the following and leave the answers in index form. ($(a^m)^n = a^{mn}$)

a) $(2^8)^2$ _____

b) $(x^5)^2$ _____

c) $(m^{10})^5$ _____

d) $(p^5)^8$ _____

e) $(n^{11})^5$ _____

f) $(x^{11})^2$ _____

g) $(y^{12})^3$ _____

h) $(y^8)^3$ _____

i) $(n7)^8$ _____

j) $(n^{13})^2$ _____

Q6 Simplify the following and leave the answers in index form.

a) $\dfrac{x^8 \times 8^2}{x^4}$ _____

b) $\dfrac{x^9}{x^2 \times x^3}$ _____

c) $x^7 \div x^5 \times x^3$ _____

d) $\dfrac{p^5 \times p^4}{p^2}$ _____

e) $\dfrac{p^5 \times p^2}{p^3} \div \dfrac{p^4}{p^3}$ _____

f) $\dfrac{y^7 \times y^8}{y^3}$ _____

g) $\dfrac{y^{11} \times y^{10}}{y^2}$ _____

h) $\dfrac{p^8 \div p^2}{p^3}$ _____

i) $\frac{m^{12} \div m^{9}}{m^{3}}$ _____

j) $\frac{m^{0} \times m^{7}}{m^{6} \times m^{0}}$ _____

Q7 Problem solving :

a) Four packets of crisps and a 5g packet of nuts weigh 180 grams. What is the weight of one packet of crisps ? _____

b) I think of a number and add 4 to it. I then multiply the total by 5 to get 25. What is the number ? _____

c) Double an angle to get 98. What is the angle ? _____

d) I add 4 to a number and then multiply by 3 to give 57. What is the number ?

_____

e) A number is multiplied by 7 is 84. What is the number ? _____

f) The area of a parallelogram is found by multiplying the base by the height. If the area is $18cm^2$ and the base is 6cm, what is the height ? _____

g) Peter buys a box of eggs. He breaks half of them and then uses four. He has five unbroken eggs remaining. How many eggs were in the box when he bought It ?

_____

h) Aran and Ayshu share £200, so that Ayshu has £40 more than Aran. How much does Ayshu have ? _____

i) In two years time Ayshu will be six and Aran will be twice as old. How old is Aran now ?

_____

j) One - quarter of a number is 14. What is the number ? _____

Fractions

Chapter 4

Exercise 4A

Equivalent Fractions

Q1 Complete the following to make equivalent fractions :

a) $\frac{1}{2} = \frac{\quad}{4}$ b) $\frac{2}{3} = \frac{12}{\quad}$ c) $\frac{1}{7} = \frac{6}{\quad}$

d) $\frac{1}{9} = \frac{\quad}{18}$ e) $\frac{2}{9} = \frac{6}{\quad}$ f) $\frac{3}{4} = \frac{18}{\quad}$

g) $\frac{1}{11} = \frac{12}{\quad}$ h) $\frac{3}{7} = \frac{27}{\quad}$ i) $\frac{1}{4} = \frac{7}{\quad}$

j) $\frac{1}{8} = \frac{8}{\quad}$ k) $\frac{7}{8} = \frac{14}{\quad}$ l) $\frac{3}{8} = \frac{27}{\quad}$

m) $\frac{7}{9} = \frac{14}{\quad}$ n) $\frac{2}{7} = \frac{12}{\quad}$ o) $\frac{5}{7} = \frac{25}{\quad}$

Q2 Find the missing number to complete the fractions :

a) $\frac{15}{25} = \frac{\quad}{50}$ b) $\frac{10}{50} = \frac{50}{\quad}$ c) $\frac{12}{24} = \frac{2}{\quad}$

d) $\frac{25}{35} = \frac{\quad}{7}$ e) $\frac{40}{100} = \frac{\quad}{10}$ f) $\frac{27}{45} = \frac{3}{\quad}$

g) $\frac{12}{25} = \frac{24}{\quad}$ h) $\frac{45}{55} = \frac{\quad}{11}$ i) $\frac{13}{26} = \frac{1}{\quad}$

j) $\frac{20}{100} = \frac{\quad}{5}$ k) $\frac{1}{9} = \frac{\quad}{90}$ l) $\frac{15}{35} = \frac{\quad}{7}$

m) $\frac{1}{14} = \frac{2}{\quad}$ n) $\frac{2}{14} = \frac{\quad}{7}$ o) $\frac{3}{45} = \frac{6}{\quad}$

Q3 **Find the value of x :**

a) $\frac{x}{15} = \frac{1}{3}$

b) $\frac{x}{3} = \frac{6}{18}$

c) $\frac{x}{2} = \frac{4}{8}$

d) $\frac{3}{5} = \frac{x}{25}$

e) $\frac{8}{x} = \frac{2}{7}$

f) $\frac{y}{12} = \frac{5}{6}$

g) $\frac{m}{9} = \frac{7}{3}$

h) $\frac{x}{52} = \frac{8}{4}$

i) $\frac{x}{3} = \frac{9}{6}$

j) $\frac{x}{7} = \frac{2}{14}$

k) $\frac{x}{9} = \frac{1}{3}$

l) $\frac{m}{7} = \frac{8}{14}$

m) $\frac{x}{5} = \frac{4}{10}$

n) $\frac{x}{8} = \frac{4}{32}$

o) $\frac{x}{12} = \frac{18}{3}$

Exercise 4B

Cancelling Fractions

Q1 **Write the following fractions in its simplest form :**

a) $\frac{4}{10}$ _____

b) $\frac{15}{25}$ _____

c) $\frac{28}{40}$ _____

d) $\frac{24}{48}$ _____

e) $\frac{10}{40}$ _____

f) $\frac{20}{25}$ _____

g) $\frac{45}{50}$ _____

h) $\frac{20}{100}$ _____

i) $\frac{25}{100}$ _____

j) $\frac{12}{26}$ _____

k) $\frac{22}{55}$ _____

l) $\frac{36}{48}$ _____

m) $\frac{44}{55}$ _____

n) $\frac{32}{48}$ _____

o) $\frac{65}{75}$ _____

p) $\frac{35}{45}$ _____

Q2 **Write in the simplest form, leaving the answer as a mixed number :**

a) $1\frac{8}{10}$ _____

b) $7\frac{3}{9}$ _____

c) $18\frac{4}{8}$ _____

d) $6\frac{4}{8}$ _____

e) $27\frac{15}{45}$ _____

f) $9\frac{15}{30}$ _____

g) $12\frac{3}{27}$ _____

h) $10\frac{5}{10}$ _____

i) $7\frac{20}{40}$ _____

j) $8\frac{21}{42}$ _____

k) $1\frac{3}{27}$ _____

l) $10\frac{10}{40}$ _____

m) $11\frac{12}{144}$ _____

n) $7\frac{11}{121}$ _____

o) $3\frac{16}{48}$ _____

p) $4\frac{32}{96}$ _____

Exercise 4C

Proper fractions, Improper fractions and mixed numbers

Q1 Write whether each fraction is proper, improper fraction or a mixed number.

a) $1\frac{2}{5}$ _____

b) $2\frac{3}{8}$ _____

c) $\frac{12}{13}$ _____

d) $2\frac{3}{5}$ _____

e) $\frac{125}{124}$ _____

f) $7\frac{7}{8}$ _____

g) $\frac{42}{52}$ _____

h) $9\frac{2}{9}$ _____

i) $\frac{39}{28}$ _____

j) $7\frac{3}{5}$ _____

Q2 Change these improper fractions into mixed fractions.

a) $\frac{13}{12}$ _____

b) $\frac{8}{7}$ _____

c) $\frac{9}{7}$ _____

d) $\frac{25}{3}$ _____

e) $\frac{125}{15}$ _____

f) $\frac{21}{8}$ _____

g) $\frac{17}{5}$ _____

h) $\frac{48}{7}$ _____

i) $\frac{31}{10}$ _____

j) $\frac{22}{10}$ _____

k) $\frac{43}{9}$ _____

l) $\frac{20}{6}$ _____

m) $\frac{11}{3}$ _____

n) $\frac{17}{5}$ _____

o) $\frac{19}{6}$ _____

Q3 **Change these mixed numbers into improper fractions.**

a) $1\frac{2}{5}$ _____

b) $2\frac{3}{8}$ _____

c) $2\frac{5}{7}$ _____

d) $15\frac{2}{7}$ _____

e) $3\frac{3}{9}$ _____

f) $4\frac{5}{8}$ _____

g) $5\frac{4}{5}$ _____

h) $6\frac{7}{8}$ _____

i) $9\frac{2}{3}$ _____

j) $4\frac{4}{5}$ _____

k) $10\frac{3}{10}$ _____

l) $11\frac{2}{3}$ _____

m) $20\frac{3}{7}$ _____

n) $19\frac{1}{3}$ _____

o) $18\frac{1}{3}$ _____

Exercise 4D

Addition and Subtraction of fractions

Q1 **Calculate the following additions (same denominator) :**

a) $\frac{1}{4}+\frac{3}{4}$ _____

b) $\frac{3}{5}+\frac{1}{5}$ _____

c) $\frac{7}{8}+\frac{3}{8}$ _____

d) $\frac{5}{9}+\frac{1}{9}$ _____

e) $\frac{11}{12}+\frac{3}{12}$ _____

f) $\frac{7}{12}+\frac{1}{12}$ _____

g) $\frac{10}{22}+\frac{1}{22}$ _____

h) $\frac{7}{23}+\frac{1}{23}$ _____

i) $\frac{8}{35}+\frac{10}{35}$ _____

j) $\frac{11}{35}+\frac{1}{35}$ _____

Q2 **Work out the following subtractions (same denominator) :**

a) $\frac{7}{8}-\frac{1}{8}$ _____

b) $\frac{13}{12}-\frac{3}{12}$ _____

c) $\frac{11}{35}-\frac{1}{35}$ _____

d) $\frac{10}{22}-\frac{1}{22}$ _____

e) $\frac{5}{9}-\frac{1}{9}$ _____

f) $\frac{7}{8}-\frac{3}{8}$ _____

g) $\frac{13}{36}-\frac{2}{36}$ _____

h) $\frac{3}{5}-\frac{1}{5}$ _____

i) $\frac{9}{15}-\frac{1}{15}$ _____

j) $\frac{7}{12}-\frac{1}{12}$ _____

Q3 Work out the following additions (with different denominators)

a) $\frac{1}{5}+\frac{2}{15}$ _____

b) $\frac{7}{8}+\frac{1}{5}$ _____

c) $\frac{4}{5}+\frac{1}{7}$ _____

d) $\frac{2}{10}+\frac{1}{20}$ _____

e) $\frac{8}{13}+\frac{1}{26}$ _____

f) $\frac{1}{14}+\frac{1}{6}$ _____

g) $\frac{9}{11}+\frac{1}{22}$ _____

h) $\frac{1}{22}+\frac{1}{14}$ _____

i) $\frac{1}{8}+\frac{2}{18}$ _____

j) $\frac{11}{12}+\frac{1}{24}$ _____

Q4 Work out the following subtractions (with different denominators)

a) $\frac{1}{5}-\frac{2}{15}$ _____

b) $\frac{11}{12}-\frac{1}{24}$ _____

c) $\frac{9}{11}-\frac{1}{22}$ _____

d) $\frac{7}{8}-\frac{1}{3}$ _____

e) $\frac{7}{8}-\frac{1}{5}$ _____

f) $\frac{4}{5}-\frac{2}{7}$ _____

g) $\frac{4}{5}-\frac{3}{7}$ _____

h) $\frac{8}{13}-\frac{1}{26}$ _____

i) $\frac{1}{9}-\frac{2}{18}$ _____

j) $\frac{2}{11}-\frac{3}{44}$ _____

Exercise 4E

Multiplication of Fractions

Q1 **Work out the following :**

a) $\frac{1}{3} \times \frac{1}{8}$ _____

b) $\frac{2}{8} \times \frac{1}{5}$ _____

c) $\frac{1}{5} \times \frac{3}{5}$ _____

d) $\frac{7}{8} \times \frac{2}{5}$ _____

e) $\frac{7}{9} \times \frac{3}{21}$ _____

f) $\frac{5}{7} \times \frac{2}{3}$ _____

g) $\frac{2}{9} \times \frac{1}{8}$ _____

h) $\frac{3}{7} \times \frac{28}{9}$ _____

i) $\frac{9}{11} \times \frac{10}{11}$ _____

j) $\frac{3}{4} \times \frac{9}{11}$ _____

k) $\frac{1}{5} \times \frac{3}{7}$ _____

l) $\frac{5}{6} \times \frac{6}{7}$ _____

Q2 **Simplify the following :**

a) $\frac{2}{3} \times 60$ _____

b) $\frac{1}{5} \times 20$ _____

c) $48 \times \frac{5}{6}$ _____

d) $1\frac{1}{4} \times 20$ _____

e) $1\frac{1}{2} \times 40$ _____

f) $2\frac{1}{4} \times 28$ _____

g) $\frac{7}{8} \times 56$ _____

h) $1\frac{1}{8} \times 80$ _____

i) $2\frac{1}{15} \times 50$ _____

j) $\frac{3}{8} \times 64$ _____

k) $1\frac{2}{5} \times 25$ _____

l) $\frac{2}{9} \times 108$ _____

m) $\frac{3}{7} \times 42$ _____

n) $\frac{3}{5} \times 50$ _____

Q3 **Simplify the following (Give your answer in mixed form)**

a) $\frac{1}{2}$ of 11 _____

b) $\frac{2}{3}$ of 16 _____

c) $\frac{1}{8}$ of 13 _____

d) $\frac{1}{7}$ of 23 _____

e) $\frac{3}{8}$ of 42 _____

f) $\frac{3}{7}$ of 41 _____

g) $\frac{1}{9}$ of 29 _____

h) $\frac{2}{9}$ of 11 _____

i) $\frac{7}{11}$ of 19 _____

j) $\frac{1}{11}$ of 56 _____

k) $\frac{1}{12}$ of 33 _____

l) $\frac{1}{5}$ of 22 _____

m) $\frac{1}{4}$ of 21 _____

n) $\frac{1}{3}$ of 17 _____

Exercise 4F

Division of Fractions

Q1 **Divide the following fraction and simplify :**

a) $\frac{1}{4} \div \frac{3}{8}$ _____

b) $\frac{1}{3} \div \frac{3}{15}$ _____

c) $\frac{7}{8} \div \frac{3}{8}$ _____

d) $\frac{6}{15} \div \frac{3}{10}$ _____

e) $\frac{7}{100} \div \frac{3}{50}$ _____

f) $\frac{11}{100} \div \frac{33}{300}$ _____

g) $\frac{7}{8} \div \frac{3}{12}$ _____

h) $\frac{6}{15} \div \frac{3}{5}$ _____

i) $\frac{8}{13} \div \frac{24}{13}$ _____

j) $\frac{8}{27} \div \frac{4}{18}$ _____

k) $\frac{3}{8} \div \frac{9}{32}$ _____

l) $\frac{8}{13} \div \frac{24}{78}$ _____

m) $\frac{48}{49} \div \frac{16}{14}$ _____

n) $\frac{3}{7} \div \frac{1}{21}$ _____

o) $\frac{16}{27} \div \frac{16}{54}$ _____

p) $\frac{5}{9} \div \frac{20}{36}$ _____

q) $\frac{15}{14} \div \frac{25}{42}$ _____

r) $\frac{1}{7} \div \frac{12}{27}$ _____

s) $\frac{2}{7} \div \frac{10}{14}$ _____

t) $\frac{3}{17} \div \frac{12}{55}$ _____

Q2 **Evaluate the following :**

a) $36 \div \frac{4}{11}$ _____

b) $25 \div \frac{5}{11}$ _____

c) $124 \div \frac{4}{7}$ _____

d) $64 \div \frac{8}{10}$ _____

e) $81 \div \frac{9}{11}$ _____

f) $121 \div \frac{11}{12}$ _____

g) $15 \div \frac{3}{7}$ _____

h) $\frac{3}{8} \div 12$ _____

i) $\frac{2}{9} \div \frac{1}{45}$ _____

j) $16 \div \frac{4}{7}$ _____

OUR PUBLICATIONS (TGL)

NO	NAME	STATUS	AUTHOR
1	Verbal reasoning (Orange)	Published	M.Nat
2	Non verbal Reasoning (Apple)	Published	M.Nat
3	Easy Going Verbal reasoning B1	Published	M.Nat
4	Easy Going Non Verbal reasoning	Published	M.Nat
5	Easy Going Mathematics Book 1	Published	M.Nat
6	Easy Going Mathematics Book 2	Published	M.Nat
7	Easy Going Mathematics Book 3	Published	M.Nat
8	Easy Going Mathematics Book 4	Published	M.Nat
9	Easy Going Mathematics Book 5	Published	M.Nat
10	Easy Going Mathematics Year 3	Published	M.Nat
11	Easy Going English Year 3	Published	J. suki
12	Easy Going Mathematics Year 4	Published	M.Nat
13	Easy Going Verbal reasoning year 4	Published	M.Nat
14	Easy Going Non Verbal Reasoning Year 4	In Print	M.Nat
15	Easy Going English Year 4	In Print	M.Nat
16	Easy Going Maths Year 6	Published	M.Nat
17	Easy Going Maths Year 8 Maths book 1	Published	M.Nat
18	Easy Going Maths KS4 (Y10, Y11)	published	M.Nat
19	Easy Going Maths Year 2	In Print	M.Nat
20	Year 9 Maths work book 1	Published	M. Nat
21	Year 7 Maths work book 1	published	M. Nat
22	11+ Comprehension	In print	R. Myra

LUXMI EDUCATION CENTRE

Unlock your potential

Courses

- Year 2 * Year 3 * Year 4 * Year 5 * year 6
- Year 7 * Year 8 * Year 9 * Year 10 & 11
- Year 12 & 13

Subjects

Maths, English, Science, Physics, Chemistry, Biology , Statistics, Mechanics

11+

Verbal Reasoning (CEM Style), Non Verbal reasoning (CEM style),

Mathematical Reasoning and English

Contact:

0208 573 0368, 07852810285

Email: luxmieducation@gmail.com, Info@leceducation.com

TGL