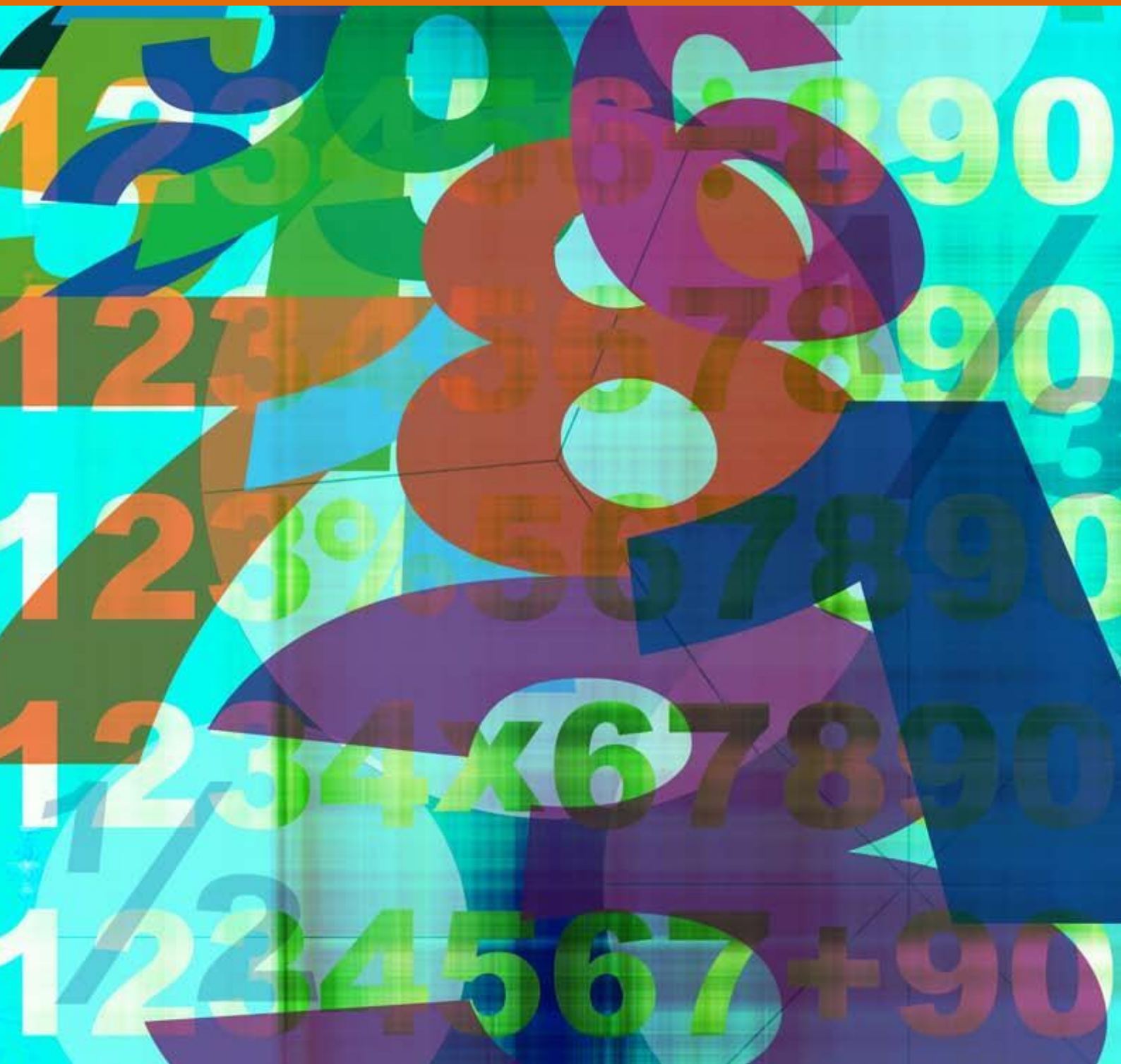
Practice Sheets and Solutions

Functional Mathematics

Level 3 Unit 1: Number



Acknowledgements

This booklet is part of a pack of resources for Functional Mathematics Level 3 which FÁS commissioned for use in their training programmes. A similar set of resources has been developed for Functional Mathematics Level 4.

A team from the National Adult Literacy Agency (NALA) and the National Centre for Excellence in Mathematics and Science Teaching and Learning (NCEMS-TL) developed and edited the materials.

NALA:

Bláthnaid Ní Chinnéide
Mary Gaynor
Fergus Dolan
John Stewart
Dr Terry Maguire (Institute of Technology, Tallaght)

NCEMS-TL:

Prof. John O'Donoghue

Dr. Mark Prendergast

Dr. Miriam Liston

Dr. Niamh O'Meara

FÁS:

John O Neill

Louise MacAvin

We are grateful to Kathleen Cramer and her team in Newbridge Youth Training and Development Centre who gave feedback on extracts from the Level 3 materials.

April 2012

Practice Sheet N1

Practice Sheet N1

Use your calculator to complete the following:

1) 1.45 + 0.89 = ☐

2) 115 + 2908 = ☐

3) 7634 – 378 = ☐

4) 2.5 – 0.156 = ☐

5) 15.78 ÷ 2= ☐

6) $\frac{15690}{15}$ = ☐

7) 436 × 387 = ☐

8) 4467 × 142 = ☐

9) $1.75 \div 0.7$ = ☐

10) 19.875 ÷ 4 = ☐

Practice Sheet N2

Practice Sheet N2

Add the following natural numbers. Show your workings.

1) 13 + 67 =

2) 21 + 42 =

3) 6 + 72 =

4) 83 + 46 =

5) 9 + 26 + 37 =

6) 55 + 35

7) 23 + 42 + 18 =

8) 99 + 22 =

9) 76 + 22 + 44 =

10) 190 + 34 + 19 =

Practice Sheet N3

Subtract the following natural numbers. Show your workings and check your answers using a calculator.

1) 53 - 7 =

2) 28 - 19 =

3) 45 - 32 =

4) 83 - 46 =

5) 96 - 37 =

6) 59 – 35 – 7 =

7) 93 - 32 - 1 =

8) 138 – 72 - 5 =

9) 1700 - 220 - 80 =

10) 1976 - 976 - 19 =

Practice Sheet N4

Task 1

Put a circle around any number that is an integer.

12	2.14	-34	109	64.5	21 ½
0.57	-55	$4\frac{1}{3}$	0	-45	15558

Task 2

Decide whether the following statements are true or false:

- True or false: -4 is greater than 2 _____
- True or false: 0 is less than -1 _____
- True or false: 3 is greater than -2 _____
- True or false: -5 is less than -3 _____
- True or false: -7 is two less than -5 _____

Practice Sheet N5

Task 1

Add and subtract the following integers. Show your workings and check your answers using a calculator.

1) - 7 + 9 =

2) 28 - 39 =

3) 45 – 32 + 2 =

4) 21 + 46 - 21 =

5) 101 - 11 =

6) 59 + 39 - 29 =

7) - 22 + 56 - 21 =

8) 1230 – 1100 - 110 =

9) 0 + 3 - 4 =

Practice Sheet N5

Task 2

Goal Difference = Goals scored – goals conceded. At the end of the 2010/11 season, Manchester United had the best goal difference in the Premier League. They had scored 78 goals and conceded 37.

a) Calculate Manchester United's goal difference.

West Ham United had the worst goal difference in the League. They scored 43 goals and conceded 70

.

b) Calculate West Ham's goal difference.

c) How much greater is Manchester United's goal difference to that of West Ham?

Practice Sheet N6

Multiply the following integers. Show your workings and check your answers using a calculator.

1) 10 x -3

2) 3 x 20

3) 24 x 3

4) -7 x 4

5) -2 x -6

6) -13 x 20

7) 0 x 9 x 1

8) -9 x -16

9) 7 x 3 x 4

10) -10 x 5

11) 82 x -4

12) 24 x 7

13) -12 x -3

Practice Sheet N7

Divide the following integers. Show your workings and check your answers using a calculator.

1) 16 ÷ 4

2) -20 ÷ 4

3) 49 ÷ - 7

4) 225 ÷ - 25

5) $^{978}/_{2}$

6) $^{600}/_{-6}$

7) - 44 ÷ 11

8) - $^{75}/_{3}$

9) - 69 ÷ 3

10) -3 ÷ 3

11) - 18 ÷ 0

12) - 180 ÷ -6

13) - 81 ÷ - 9

14) $^{207}/_{9}$

Practice Sheet N8

Practice Sheet N8

Task 1

One part of the whole	Its Name	Its Symbol
2 parts of 3 is called	Two thirds	$\frac{2}{3}$
4 parts of 5 is called		
1 part of 5 is called		
3 parts of 4 is called		

Task 2

Write the names of these fractions:

$\frac{1}{10}$ _____

$\frac{4}{7}$ _____

$\frac{1}{8}$ _____

$\frac{2}{5}$ _____

$\frac{3}{3}$ _____

Practice Sheet N9

Fill in the spaces to show the equivalent fractions. Use the fraction circles to help if needed.

1) $\frac{1}{3} = \frac{\quad}{24}$

2) $\frac{1}{7} = \frac{3}{\quad}$

3) $\frac{6}{9} = \frac{\quad}{3}$

4) $\frac{2}{5} = \frac{\quad}{10}$

5) $\frac{3}{4} = \frac{\quad}{12}$

6) $\frac{5}{8} = \frac{\quad}{16}$

7) $\frac{6}{10} = \frac{\quad}{100}$

8) $\frac{1}{5} = \frac{\quad}{10}$

9) $\frac{5}{6} = \frac{\quad}{30}$

10) $\frac{6}{15} = \frac{\quad}{5}$

11) $\frac{8}{10} = \frac{4}{\quad}$

12) $\frac{7}{10} = \frac{\quad}{100}$

Practice Sheet N10

Practice Sheet N10

Task 1

Convert the following fractions to ratios:

1) $^1/_3$ = ☐

2) $^1/_7$ = ☐

3) $^6/_9$ = ☐

4) $^2/_5$ = ☐

5) $^3/_4$ = ☐

Task 2

In the 2011 Presidential Election, Michael D Higgins became the ninth President of Ireland receiving $\frac{2}{5}$ of the overall first preference votes.

Covert this fraction to a ratio.

Explain in words what this ratio means.

Practice Sheet N11

Add the following fractions. Use the fraction circles to help if needed.

1) $\frac{2}{8} + \frac{1}{8}$ ☐

2) $\frac{2}{7} + \frac{1}{7}$ ☐

3) $\frac{1}{4} + \frac{1}{4}$ ☐

4) $\frac{1}{15} + \frac{4}{15} + \frac{5}{15}$ ☐

5) $\frac{1}{8} + \frac{5}{8} + \frac{2}{8}$ ☐

6) $\frac{5}{8} + \frac{1}{8}$ ☐

7) $\frac{4}{5} + \frac{2}{5}$ ☐

8) $\frac{8}{15} + \frac{6}{15}$ ☐

9) $\frac{5}{12} + \frac{2}{12}$ ☐

10) $\frac{7}{8} + \frac{2}{8} + \frac{1}{8}$ ☐

11) $\frac{3}{8} + \frac{2}{8} + \frac{5}{8}$ ☐

12) $\frac{3}{5} + \frac{2}{5} + \frac{1}{5}$ ☐

Practice Sheet N12

Add and subtract the following fractions. Use the fraction circles to help if needed.

1) $\frac{1}{7} + \frac{1}{3}$ ☐

2) $\frac{2}{5} + \frac{1}{6}$ ☐

3) $\frac{2}{3} - \frac{1}{4}$ ☐

4) $\frac{2}{9} - \frac{1}{3}$ ☐

5) $\frac{3}{4} - \frac{1}{6}$ ☐

6) $\frac{5}{6} + \frac{1}{3}$ ☐

7) $\frac{3}{10} - \frac{1}{5}$ ☐

8) $\frac{5}{9} - \frac{1}{6} + \frac{1}{3}$ ☐

9) $\frac{3}{10} - \frac{1}{4}$ ☐

10) $\frac{1}{6} - \frac{1}{4}$ ☐

11) $\frac{1}{2} - \frac{1}{5}$ ☐

12) $\frac{5}{9} - \frac{1}{4}$ ☐

Practice Sheet N13

Practice Sheet N13

Task 1

Look at the numbers in the box below.

1.2	-238	1million	64.5	61 ½
-1	30.30	$^{4}/_{5}$	0	368

Are they all real numbers? Tick the appropriate box.

Yes ☐ **No** ☐

Practice Sheet N13

Task 2

This is a list of all the numbers from the box above. For each one, decide if it is a **natural number, negative whole number, fraction** or **decimal.**

1.2	
$^4/_5$	
0	
-1	
30.30	
1 million	
-238	
368	
64.5	
$61^1/_2$	

Practice Sheet N14

Practice Sheet N14

Identify how many ones, tenths and hundreds are in each number.

1) 3.56 _____ ones _____ tenths _____ hundredths

2) 5.98 _____ ones _____ tenths _____ hundredths

3) 6.01 _____ ones _____ tenths _____ hundredths

4) 7.9 _____ ones _____ tenths _____ hundredths

5) 9.82 _____ ones _____ tenths _____ hundredths

6) 0.76 _____ ones _____ tenths _____ hundredths

7) 1.09 _____ ones _____ tenths _____ hundredths

8) 4.56 _____ ones _____ tenths _____ hundredths

9) 10.89_____ ones _____ tenths _____ hundredths

10) Last week Mr. Lewis' weekly shopping bill amounted to €112.47. When he handed in €120 euro he got the change in Euro coins, ten cent coins and one cent coins. The total change he got was €7.53.

a) How many Euro coins, ten cent coins and cent coins did Mr. Lewis receive in his change?

b) If Mr. Lewis had paid with the exact change how many one cent coins would he have needed?

Practice Sheet N16

Practice Sheet N15

Add the following real numbers. Check your answers using your calculator.

1) 2.65 + 3.17

2) 4.53 + 8.96

3) 34.67 + 1.42

4) 0.67 + 57.98

5) 15.50 + 13.56

6) 56.7 + 1.32 + 6.93

7) 45.5 + 16 + 3.65

8) 5.67 + 8.01 + 6.9

9) 86.87 + 7.4 + 4.5

10) 6.54 + 4.56 + 9.06

11) 23.5 + 76.2 + 5.09

12) 5.43 + 63.5 + 78.65 + 11.32

13) 65.4 + 90.8 +7.65 + 33.45

Practice Sheet N16

Task 1

Subtract the following real numbers.

1) 4.78 - 3.65

2) 7.43 - 0.87

3) 6.55 - 2.49

4) 67.89 - 56.73

5) 78.45 - 8.92

6) 15.50 - 13.56

7) 145.1 - 45.67

8) 78.01 - 8.45

Practice Sheet N16

Task 2

Add and subtract the following real numbers.

1) 18.69 + 5.78 - 11.43 ☐

2) 18.95 -18.67 + 3.25 ☐

3) 56.98 - 34.11 - 17.89 ☐

4) 68.01 - 45.79 + 11.3 ☐

5) 56.04 - 17.89 + 5.75 ☐

6) 5.82 - 0.45 - 3.61 ☐

7) 18.46 - 17.32 - 1.14 ☐

8) 18.73 + 11.14 + 0.5 - 30 ☐

Practice Sheet N17

Convert the following percentages to fractions in their simplest form.

1) 50%

2) 25%

3) 5%

4) 18%

5) 100%

6) 65%

7) 72%

8) 98%

9) 67%

10) 12.5%

11) 37.5%

12) 32%

Practice Sheet N18

Practice Sheet N18

Task 1

Convert the following decimals to fratcions in their simpliest form.

1) 0.6

2) 0.5

3) 0.3

4) 0.45

5) 0.75

6) 0.68

7) 0.02

8) 0.56

9) 0.26

10) 0.13

Task 2

Convert the following fractions to percentages.

1) $^{1}/_{4}$

2) $^{1}/_{5}$

3) $^{2}/_{5}$

4) $^{3}/_{10}$

5) $^{1}/_{8}$

6) $^{3}/_{4}$

7) $^{4}/_{5}$

8) $^{9}/_{10}$

9) $^{1}/_{2}$

10) $^{6}/_{8}$

Practice Sheet N18

Task 3

Convert the following fractions to percentages.

1) 0.23

2) 0.6

3) 0.5

4) 0.25

5) 0.86

6) 0.75

7) 0.84

8) 0.7

9) 0.19

10) 1.65

Practice Sheet N19

Task 1

On the 12th January 2010 a devastating earthquake hit Haiti. Immediately, charities around the world made appeals to people to donate and help with the relief effort.

The charity organisation Concern asked people to donate €40.00 to help the people of Haiti. According to the website Charity Navigator:

- 0.03 of all the money received by Concern was spent on administrative expense.
- 4.6% was spent on fundraising expenses.
- The rest of the money went directly to the people in need.

If you donated €40 how much of it would go directly to the people in need.

Task 2

Liverpool Football Club spends a total of €260,000 per week on three players' wages:

Steven Gerrard earns 41% of this weekly amount.
Luis Suarez earns 0.34 the weekly amount.
Andy Carroll earns $^1/_4$ of the weekly amount.

a) How much does each of these three players earn per week?

b) If Gerrard's wages were reduced by 15 %, how much would he then earn?

Practice Sheet N20

Practice Sheet N20

Task 1:

1) Divide €900 in the ratio of 2: 3

2) Divide €400 in the ratio of 3: 2: 1

3) Divide €10,000 in the ratio of 2: 3: 5

4) Divide €880 in the ratio of 1: 2: 4

5) Divide €54,000 in the ratio of 5: 4: 1

Task 2:

Simplify the following:

1) $1\frac{2}{3}:2\ \frac{1}{3}:1\frac{1}{3}$

2) $3\frac{2}{5}:2\ \frac{2}{5}:3\frac{4}{5}$

3) $1\frac{3}{5}:6\ \frac{1}{5}:4\frac{2}{5}$

4) $4\frac{2}{7}:1\ \frac{1}{7}:2\frac{4}{7}$

5) $1\frac{2}{9}:2\ \frac{1}{9}:1\frac{4}{9}$

Practice Sheet N21

Task 1:

Round the following numbers off to the nearest hundred.

1) 3,685

2) 45,891

3) 654

4) 3,456,789

Task 2:

Round the following numbers off to the nearest thousand.

1) 16,542

2) 235,219

3) 8,761

4) 3,678,923

Practice Sheet N21

Task 3:

Round the following numbers off to the nearest ten.

1) 165

2) 1,824

3) 47

4) 6,784,352

Task 4:

Round the following numbers off to two decimal places.

1) 1.013

2) 1.65732

3) 5.764

4) 7.9913875

Practice Sheet N22

Practice Sheet N22

Task 1

In the table below you must link the time from the 12 – hour clock to its matching 24 – hour time by putting the appropriate numbers, 1, 2, 3, 4, 5, or 6 from column 2 into the correct boxes below. The first one has been done for you.

Column 1	Column 2
12 Hour Clock	**24 Hour Clock**
a. 11:45 p.m.	1. 16:45
b. 5:45 p.m.	2. 19:45
c. 3:45 a.m.	3. 11:45
d. 11:45 a.m.	4. 23:45
e. 4:45 p.m.	5. 17:45
f. 7.45 p.m.	6. 03:45

a. → **4**

b. → ☐

c. → ☐

d. → ☐

e. → ☐

f. → ☐

Practice Sheet N22

Task 2

Write each phrase in column one as **minutes** in column 2. The first one has been done for you.

Phrases	**Minutes**
½ an hour	30 minutes
2 and a quarter hours	
¾ of an hour	
4 ½ hours	
An hour and three - quarters	

Practice Sheet N22

Task 3

The following is the timetable for the fitness classes that take place in Jack's local gym. The gym is a ten minute walk from where he works and a 15 minute walk from where he lives. Study the timetable and answer the questions below.

Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
7:15 Circuits		7:15 Spinning		7:15 Step Aerobics
13:45 Spinning	13:45 Aerobics		13:30 Pilates	13:30 Kettleballs
	17:35 Yoga			
18:30 Pilates		18:45 Kick Boxing	18:25 Circuits	
19:45 Bootcamp	19:45 Bootcamp	19:45 Bootcamp	19:45 Bootcamp	19:45 Bootcamp

1) Jack attends the spinning class every Monday. If he needs ten minutes to get changed into his gym gear what time must Jack leave his work at on Mondays to make sure he is ready when the class begins? Give your answer using the 12 – hour clock format.

2) Jack also attends Yoga every Tuesday. If the class lasts 50 minutes what time will Jack be finished exercising at?

Practice Sheet N22

3) Jack has reserved a table in a restaurant for himself and his girlfriend on Thursday night at 7.30. It is a fifteen minute walk from the gym; however, he has promised his friend he will also attend circuits on that night. If the class lasts 45 minutes and Jack takes 20 minutes to get showered and changed how late will he be for his date?

4) On Friday Jack attends the Kettleballs class. The class lasts for 45 minutes and Jack takes 10 minutes to get showered and changed afterwards. If he walks back to the office at what time, on the 12 hour clock will he be back at work?

Practice Sheet N23

Task 1

Round the following prices off to the nearest euro:

1) A bottle of coke costs €1.59 ☐

2) A dress costs €12.35 ☐

3) A pair of earrings costs €45.69 ☐

4) A birthday card costs €2.49 ☐

Task 2

In a recent sale in Penney's a number of different items were reduced. The table below gives details about the item, its original price and the discount that is being offered. You must complete the table by filling in the sale price in the final column.

Item	**Original Price**	**Information on discount**	**Sale Price**
Scarf	€4.50	This item is reduced to half price.	
Handbag	€12	25% off during the sale	
Duvet Set	€24	10% off during the sale	
Candle	€2.80	20% off during the sale	
Woollen Jumper	€22	Sold at ¾ of original price during the sale	

Practice Sheet N23

Task 3

The price list for a local hairdresser is outlined below:

Description	**Price**
Wash, Cut and Blow Dry	€ 18.85
Half Head Highlights*	€ 75.50
Full Head Highlights*	€115.00
GHD Curl	€ 24.35
Semi-Permanent Colour*	€ 72.20

* Excludes Wash, Cut and Blow Dry

1) Calculate the total cost of getting a semi – permanent colour and a wash, cut and blow dry?

2) Find the cost of getting half – head highlights, wash, cut and blow dry and GHD curl, to the nearest Euro.

3) If VAT is charged at a rate of 23%, find the price of full head highlights excluding VAT to the nearest cent.

4) Students are offered a 10% discount. Find how much it would cost for a student to get a Wash, Cut and Blow Dry and GHD curls, correct to the nearest cent?

5) Elaine is a student and has a €120 voucher for this hairdresser. How much extra will she have to contribute if she wishes to get a full head of highlights and a wash cut and blow dry?

Practice Sheet N24

Task 1

Fill in the blanks in the following sentences with one of these numbers or words.

Note: Each number or word may only be used once.

100	centimetres	litre	10	1000

1) 100 _____ is equal to 1 metre.

2) _____ millimetres are equal to 1 centimetre.

3) _____ centilitres can also be expressed as 1 litre.

4) _____ millilitres = 1 _____.

Task 2

The table below shows the amount of liquid different items can hold. Complete the table by filling in the missing cells in each line. The first one has been done for you.

Item	**Litres**	**Centilitres**	**Millilitres**
Small bottle of Fanta	0.5	**50**	**500**
Vase	1.3		
Watering Can		400	
Fish Tank			200,000
Capri Sun		30	

Practice Sheet N24

Task 3

Solve the following problems:

1) Aidan is going to construct decking in his back garden. To do this, he must divide a plank of wood that is 1.8 metres long into smaller strips, each of which must be 15 centimetres long. How many smaller strips will he be able to get out of the large plank of wood?

2) Space Mountain in Disneyland Paris states that a child who wishes to go on the ride must be accompanied by an adult if they are between 1,100 mm and 1,500 mm in height. Tara measures her daughter Megan before going to Disneyland and finds that she is 111.6 cm. Will Megan be able to go on Space Mountain on her own? Give a reason for your answer.

3) Shane makes a tree house for his child. It is 2.4 metres above the ground. He buys a rope ladder to hang from the door of the tree house and nail to the ground. The rope ladders come in lengths of 210 cm, 2,400 mm or 2,550 mm. Which ladder would be best suited to Shane's needs?

Solution Sheet N1

Solution Sheet N1

1) 1.45 + 0.89 = 2.34

2) 115 + 2908 = 3023

3) 7634 – 378 = 7256

4) 2.5 – 0.156 = 2.344

5) 15.78 ÷ 2= 7.89

6) $\frac{15690}{15}$ = 1046

7) 436 × 387 = 168732

8) 4467 × 142 = 634314

9) $1.75 \div 0.7$ = 2.5

10) 19.875 ÷ 4 = 4.96875

Solution Sheet N2

1) 13 + 67 = 80

2) 21 + 42 = 63

3) 6 + 72 = 78

4) 83 + 46 = 129

5) 9 + 26 + 37 = 72

6) 55 + 35 90

7) 23 + 42 + 18 = 83

8) 99 + 22 = 121

9) 76 + 22 + 44 = 142

10) 190 + 34 + 19 = 243

Solution Sheet N3

Subtract the following natural numbers. Show your workings and check your answers using a calculator

1) 53 - 7 = 46

2) 28 - 19 = 9

3) 45 - 32 = 13

4) 83 - 46 = 37

5) 96 - 37 = 59

6) 59 – 35 – 7 = 17

7) 93 - 32 - 1 = 60

8) 138 – 72 - 5 = 61

9) 1700 - 220 - 80 = 1400

10) 1976 - 976 - 19 = 981

Solution Sheet N4

Task 1

Put a circle around any number that is an integer.

12	2.14	-34	109	64.5	21 ½
0.57	-55	$4\frac{1}{3}$	0	-45	15558

Task 2

Decide whether the following statements are true or false:

- True or false: -4 is greater than 2 — False
- True or false: 0 is less than -1 — False
- True or false: 3 is greater than -2 — True
- True or false: -5 is less than -3 — True
- True or false: -7 is two less than -5 — True

Solution Sheet N5

Task 1

1) - 7 + 9 = 2

2) 28 - 39 = -11

3) 45 – 32 + 2 = 15

4) 21 + 46 - 21 = 46

5) 101 - 11 = 90

6) 59 + 39 - 29 = 69

7) - 22 + 56 - 21 = 13

8) 1230 – 1100 - 110 = 20

9) 0 + 3 - 4 = -1

Solution Sheet N5

Task 2

a) Calculate Manchester United's goal difference.

41

.

b) Calculate West Ham's goal difference.

-27

c) How much greater is Manchester United's goal difference to that of West Ham?

68

Solution Sheet N6

1)	10 x -3	-30
2)	3 x 20	60
3)	24 x 3	72
4)	-7 x 4	-28
5)	-2 x -6	12
6)	-13 x 20	-260
7)	0 x 9 x 1	0
8)	-9 x -16	144
9)	7 x 3 x 4	84
10)	-10 x 5	-50
11)	82 x -4	-328
12)	24 x 7	168
13)	-12 x -3	36

Solution Sheet N7

1) 16 ÷ 4	4
2) -20 ÷ 4	-5
3) 49 ÷ - 7	-7
4) 225 ÷ - 25	-9
5) $^{978}/_{2}$	489
6) $^{600}/_{-6}$	-100
7) - 44 ÷ 11	-4
8) - $^{75}/_{3}$	-25
9) - 69 ÷ 3	-23
10) -3 ÷ 3	-1
11) - 18 ÷ 0	0
12) - 180 ÷ -6	30
13) - 81 ÷ - 9	9
14) $^{207}/_{9}$	23

Solution Sheet N8

Task 1

One part of the whole	Its Name	Its Symbol
2 parts of 3 is called	Two thirds	$\frac{2}{3}$
4 parts of 5 is called	Four fifths	$\frac{4}{5}$
1 part of 5 is called	One fifth	$\frac{1}{5}$
3 parts of 4 is called	Three quarters	$\frac{3}{4}$

Task 2

Write the names of these fractions:

$\frac{1}{10}$ One tenth

$\frac{4}{7}$ Four sevenths

$\frac{1}{8}$ One eighth

$\frac{2}{5}$ Two fifths

$\frac{3}{3}$ Three thirds or one

Solution Sheet N9.

1) $\frac{1}{3} = \frac{8}{24}$

2) $\frac{1}{7} = \frac{3}{21}$

3) $\frac{6}{9} = \frac{2}{3}$

4) $\frac{2}{5} = \frac{4}{10}$

5) $\frac{3}{4} = \frac{9}{12}$

6) $\frac{5}{8} = \frac{10}{16}$

7) $\frac{6}{10} = \frac{60}{100}$

8) $\frac{1}{5} = \frac{2}{10}$

9) $\frac{5}{6} = \frac{25}{30}$

10) $\frac{6}{15} = \frac{2}{5}$

11) $\frac{8}{10} = \frac{4}{5}$

12) $\frac{7}{10} = \frac{70}{100}$

Solution Sheet N10

Task

Convert the following fractions to ratios:

1) $^{1}/_{3}$ = 1:3

2) $^{1}/_{7}$ = 1:7

3) $^{6}/_{9}$ = 2:3

4) $^{2}/_{5}$ = 2:5

5) $^{3}/_{4}$ = 3:4

Task 2

2: 5

The ratio means that 2 out of every 5 people that voted gave Michael D. Higgins their first preference vote.

Solution Sheet N11

Add the following fractions. Use the fraction circles to help if needed.

1) $^{2}/_{8} + {}^{1}/_{8} = {}^{3}/_{8}$

2) $^{2}/_{7} + {}^{1}/_{7} = {}^{3}/_{7}$

3) $^{1}/_{4} + ¼ = {}^{2}/_{4}$

4) $^{1}/_{15} + {}^{4}/_{15} + {}^{5}/_{15} = {}^{10}/_{15}$

5) $^{1}/_{8} + {}^{5}/_{8} + {}^{2}/_{8} = {}^{8}/_{8} = 1$

6) $^{5}/_{8} + {}^{1}/_{8} = {}^{6}/_{8}$

7) $^{4}/_{5} + {}^{2}/_{5} = {}^{6}/_{5}$

8) $^{8}/_{15} + {}^{6}/_{15} = {}^{14}/_{15}$

9) $^{5}/_{12} + {}^{2}/_{12} = {}^{7}/_{12}$

10) $^{7}/_{8} + {}^{2}/_{8} + {}^{1}/_{8} = {}^{10}/_{8}$

11) $^{3}/_{8} + {}^{2}/_{8} + {}^{5}/_{8} = {}^{10}/_{8}$

12) $^{3}/_{5} + {}^{2}/_{5} + {}^{1}/_{5} = {}^{6}/_{5}$

Solution Sheet N12

Add and subtract the following fractions. Use the fraction circles to help if needed.

13) $^{1}/_{7} + {}^{1}/_{3}$ $= {}^{10}/_{21}$

14) $^{2}/_{5} + {}^{1}/_{6}$ $= {}^{17}/_{30}$

15) $^{2}/_{3} - {}^{1}/_{4}$ $= 5/12$

16) $^{2}/_{9} - {}^{1}/_{3}$ $= -- {}^{1}/_{9}$

17) $^{3}/_{4} - {}^{1}/_{6}$ $= {}^{7}/_{12}$

18) $^{5}/_{6} + {}^{1}/_{3}$ $= {}^{7}/_{6} = 1\,{}^{1}/_{6}$

19) $^{3}/_{10} - {}^{1}/_{5}$ $= {}^{1}/_{10}$

20) $^{5}/_{9} - {}^{1}/_{6} + {}^{1}/_{3}$ $= {}^{13}/_{18}$

21) $^{3}/_{10} - ¼$ $= {}^{1}/_{20}$

22) $^{1}/_{6} - ¼$ $= - {}^{2}/_{24} = - {}^{1}/_{12}$

23) $^{1}/_{2} - {}^{1}/_{5}$ $= {}^{3}/_{10}$

24) $^{5}/_{9} - {}^{1}/_{4}$ $= {}^{11}/_{36}$

Solution Sheet N13

Task 1

Look at the numbers in the box below.

1.2	-238	1million	64.5	61 ½
-1	30.30	$^4/_5$	0	368

Are they all real numbers?

Yes

Task 2

This is a list of all the numbers from the box above. For each one, decide if it is a **natural number, negative whole number, fraction** or **decimal.**

1.2	Decimal
$^4/_5$	Fraction
0	Natural

Solution Sheet N13

-1	Negative Whole
30.30	Decimal
1 million	Natural
-238	Negative Whole
368	Natural
64.5	Decimal
$61\frac{1}{2}$	Fraction

Solution Sheet N14

Identify how many ones, tenths and hundreds are in each number.

1)	3.56	3 ones	5 tenths	6 hundredths
2)	5.98	5 ones	9 tenths	8 hundredths
3)	6.01	6 ones	0 tenths	1 hundredths
4)	7.9	7 ones	9 tenths	0 hundredths
5)	9.82	9 ones	8 tenths	2 hundredths
6)	0.76	0 ones	7 tenths	6 hundredths
7)	1.09	1 ones	0 tenths	9 hundredths
8)	4.56	4 ones	5 tenths	6 hundredths
9)	10.89	10 ones	8 tenths	9 hundredths

10)

a) Mr Lewis received 7 euro coins, 5 ten cent coins and 3 one cent coins.

b) He would have needed 7 one cent coins.

Solution Sheet N15

Add the following real numbers. Check your answers using your calculator.

1) 2.65 + 3.17 — 5.82

2) 4.53 + 8.96 — 13.49

3) 34.67 + 1.42 — 36.09

4) 0.67 + 57.98 — 58.65

5) 15.50 + 13.56 — 29.06

6) 56.7 + 1.32 + 6.93 — 64.95

7) 45.5 + 16 + 3.65 — 65.15

8) 5.67 + 8.01 + 6.9 — 20.58

9) 86.87 + 7.4 + 4.5 — 98.77

Solution Sheet N15

10) 6.54 + 4.56 + 9.06 — 20.16

11) 23.5 + 76.2 + 5.09 — 104.79

12) 5.43 + 63.5 + 78.65 + 11.32 — 158.90

13) 65.4 + 90.8 +7.65 + 33.45 — 197.3

Solution Sheet N16

Task 1

Subtract the following real numbers.

1) 4.78 - 3.65	1.13
2) 7.43 - 0.87	6.56
3) 6.55 - 2.49	4.06
4) 67.89 - 56.73	11.16
5) 78.45 - 8.92	69.53
6) 15.50 - 13.56	1.94
7) 145.1 - 45.67	99.43
8) 78.01 - 8.45	69.56

Solution Sheet N16

Task 2

Add and subtract the following real numbers.

1) 18.69 + 5.78 - 11.43 — 13.04

2) 18.95 -18.67 + 3.25 — 3.53

3) 56.98 - 34.11 - 17.89 — 4.98

4) 68.01 - 45.79 + 11.3 — 33.52

5) 56.04 - 17.89 + 5.75 — 43.9

6) 5.82 - 0.45 - 3.61 — 1.76

7) 18.46 - 17.32 - 1.14 — 0

8) 18.73 + 11.14 + 0.5 - 30 — 0.37

Solution Sheet N17

Convert the following percentages to fractions in their simplest form.

1) $50\% = \frac{1}{2}$

2) $25\% = \frac{1}{4}$

3) $5\% = \frac{1}{20}$

4) $18\% = \frac{9}{50}$

5) $100\% = \frac{1}{1}$

6) $65\% = \frac{13}{20}$

7) $72\% = \frac{18}{25}$

Solution Sheet N17

8) 98% = $\frac{49}{50}$

9) 67% = $\frac{67}{100}$

10) 12.5% = $\frac{1}{8}$

11) 37.5% = $\frac{3}{8}$

12) 32% = $\frac{8}{25}$

Solution Sheet N18

Task 1

1) $\frac{3}{5}$

2) $\frac{1}{2}$

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

4) $\frac{9}{20}$

5) $\frac{3}{4}$

6) $\frac{17}{25}$

7) $\frac{1}{50}$

8) $\frac{14}{25}$

9) $\frac{13}{50}$

10) $\frac{13}{100}$

Task 2

1) 25%

2) 20%

3) 40%

4) 30%

5) 12.5%

6) 75%

7) 80%

8) 90%

9) 50%

10) 75%

Solution Sheet N18

Task 3

1) 23%

2) 60%

3) 50%

4) 25%

5) 86%

6) 75%

7) 84%

8) 70%

9) 19%

10) 165%

Solution Sheet N19

Task 1

0.03 × 40 = 1.20

0.046 × 40 = 1.84

1.2 + 1.84 = 3.04

40 – 3.04 = 36.96

€36.96 of the money you donated would go directly to the people in need.

Task 2

a)

41% of 260,000 = 106,600

Gerrard earns €106,600 per week

0.34 of 260,000 = 88,400

Suarez earns €88,400 per week

$^1/_4$ of 260,000 = 65,000

Carroll earns €65,000 per week

b) If Gerrard's wages were reduced by 15 %:

15% of 106,600 = 15,990

106,600 – 15,990 = €90,610

Solution Sheet N20

Solution Sheet N20

Task 1:

1) €900 in the ratio of 2: 3 = €360 : €540

2) €400 in the ratio of 3: 2: 1 = €200 : €133.33: €66.67

3) €10,000 in the ratio of 2: 3: 5 = €2000 : €3000 : €5000

4) €880 in the ratio of 1: 2: 4 = €125.71 : €251.43: €502.86

5) €54,000 in the ratio of 5: 4: 1 = €27000 : €21600 : €5400

Task 2:

1) $1\frac{2}{3}:2\ \frac{1}{3}:\ 1\frac{1}{3}$

$\frac{5}{3}:\ \frac{7}{3}:\ \frac{4}{3}$

This can be written as 5: 7: 4.

2) $3\frac{2}{5}:2\ \frac{2}{5}:\ 3\frac{4}{5}$

$\frac{17}{5}:\ \frac{12}{5}:\ \frac{19}{5}$

This can be written as 17: 12: 19.

3) $1\frac{3}{5}:6\ \frac{1}{5}:\ 4\frac{2}{5}$

$\frac{8}{5}:\ \frac{31}{5}:\ \frac{22}{5}$

This can be written as 8: 31:22.

Solution Sheet N20

4) $4\frac{2}{7}:1\frac{1}{7}:2\frac{4}{7}$

$\frac{30}{7}:\frac{8}{7}:\frac{18}{7}$

This can be written as 30: 8: 18.

5) $1\frac{2}{9}:2\frac{1}{9}:1\frac{4}{9}$

$\frac{11}{9}:\frac{19}{9}:\frac{13}{9}$

This can be written as 11: 19: 13.

Solution Sheet N21

Solution Sheet N21

Task 1:

1) 3,700

2) 45,900

3) 700

4) 3,456,800

Task 2:

1) 17,000

2) 235,000

3) 9,000

4) 3,679,000

Solution Sheet N21

Task 3:

1) 170

2) 1,820

3) 50

4) 6,784,350

Task 4:

1) 1.01

2) 1.66

3) 5.76

4) 7.99

Solution Sheet N22

Task 1

a. → 4

b. → 5

c. → 6

d. → 3

e. → 1

f. → 2

Task 2

Phrases	**Minutes**
½ an hour	30 minutes
2 and a quarter hours	135 minutes
¾ of an hour	45 minutes
4 ½ hours	270 minutes
An hour and three - quarters	105 minutes

Solution Sheet N22

Task 3

1) Jack must leave work at 1.25 pm

2) Jack will be finished exercising at 18.25.

3) He will be 15 minutes late for his date.

4) 2.35 pm

Task 4

1) Distance = Speed x Time

35 minutes can be expressed as $^{35}/_{60} = {}^{7}/_{12} = 0.5833$

Distance = 55 x 0.5833

Distance = 32.083 km

2) Speed = Distance ÷ Time

15 minutes can be expressed as $^{15}/_{60} = {}^{3}/_{12} = 0.25$

Speed = 13 ÷ 0.25

Speed = 52 km/hour

Solution Sheet N23

Solution Sheet N23

Task 1

1) A bottle of coke that costs €1.59 — €2

2) A dress that costs €12.35 — €12

3) Earrings that cost €45.69 — €46

4) A birthday card that cost €2.49 — €2

Task 2

Item	Original Price	Information on discount	Sale Price
Scarf	€4.50	This item is reduced to half price.	€ 2.25
Handbag	€12	25% off during the sale	€ 9.00
Duvet Set	€24	10% off during the sale	€21.60
Candle	€2.80	20% off during the sale	€ 2.24
Woollen Jumper	€22	Sold at ¾ of original price during the sale	€ 5.50

Solution Sheet N23

Task 3

1) €91.05

2) €119

3) Full head highlights excluding VAT to the nearest cent = €88.55

4) Cost for student to get a Wash, Cut and Blow Dry and GHD curls = €43.20
Minus 10% discount for students = €38.88

5) Cost of full head of highlights and a wash cut and blow dry = €133.85
Minus 10% discount for students = 120.47

Elaine will have to contribute €0.47

Solution Sheet N24

Task 1

1) 100 centimetres is equal to 1 metre.

2) 10 millimetres is equal to 1 centimetre.

3) 100 centilitres can also be expressed as 1 litre.

4) 1000 millilitres = 1 litre

Task 2

The table below shows the amount of liquid different items can hold. Complete the table below by filling in the missing cells in each line. The first one has been done for you.

Item	Litres	Centilitres	Millilitres
Small bottle of Fanta	0.5	**50**	**500**
Vase	1.3	130	1300
Watering Can	4	400	4000
Fish Tank	200	20,000	200,000
Capri Sun	0.3	30	300

Solution Sheet N24

Task 3

Solve the following problems:

1) 1.8 metre = 180 centimetres
180 ÷ 15 = 12 smaller strips

2) 111.6 cm × 10 = 1116mm.
Megan will be able to go on Space Mountain because she is within the recommended height.

3) The 2400mm, that is 2.4 metres, rope ladder would best suit Shane's needs because it is nearly touching the ground.

NDP
National Development Plan
Transforming Ireland

FÁS
Foras Áiseanna Saothair
Training & Employment Authority

Ireland's EU Structural Funds
Programmes 2007 - 2013

Co-funded by the Irish Government
and the European Union

EUROPEAN SOCIAL FUND