



*Creating a whole generation of
kids that are confident in maths*

FOCUSING ON FRACTIONS, DECIMALS & PERCENTS

PART 2 OF 2

**STUDENT WORKBOOK
SAMPLE**

PURPLE LESSON TWO





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kids that are confident in maths*

This book is part of a suite of resources developed to support your student in enjoying and understanding maths. Please use this as a tool towards the end of each lesson for practicing what they have learnt.

Worksheets will never replace a well-trained and confident teacher (you), so please use your judgment and use this only to the extent that works for your student.

This book has been made available to you in downloadable form to minimise our impact on the environment and to minimise the impact on printing and delivery costs so that we can make this as inexpensive as possible for you.

We are committed to providing you with quality resources that simplify your teaching and amplify your student's mastery of maths.

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**MATHS
AUSTRALIA**

PURPLE LEVEL SIX Student Workbook

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Printed in Australia

Completion Checklist

Check off each lesson as you complete it.

PURPLE LEVEL SIX

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- | | | | | | | | |
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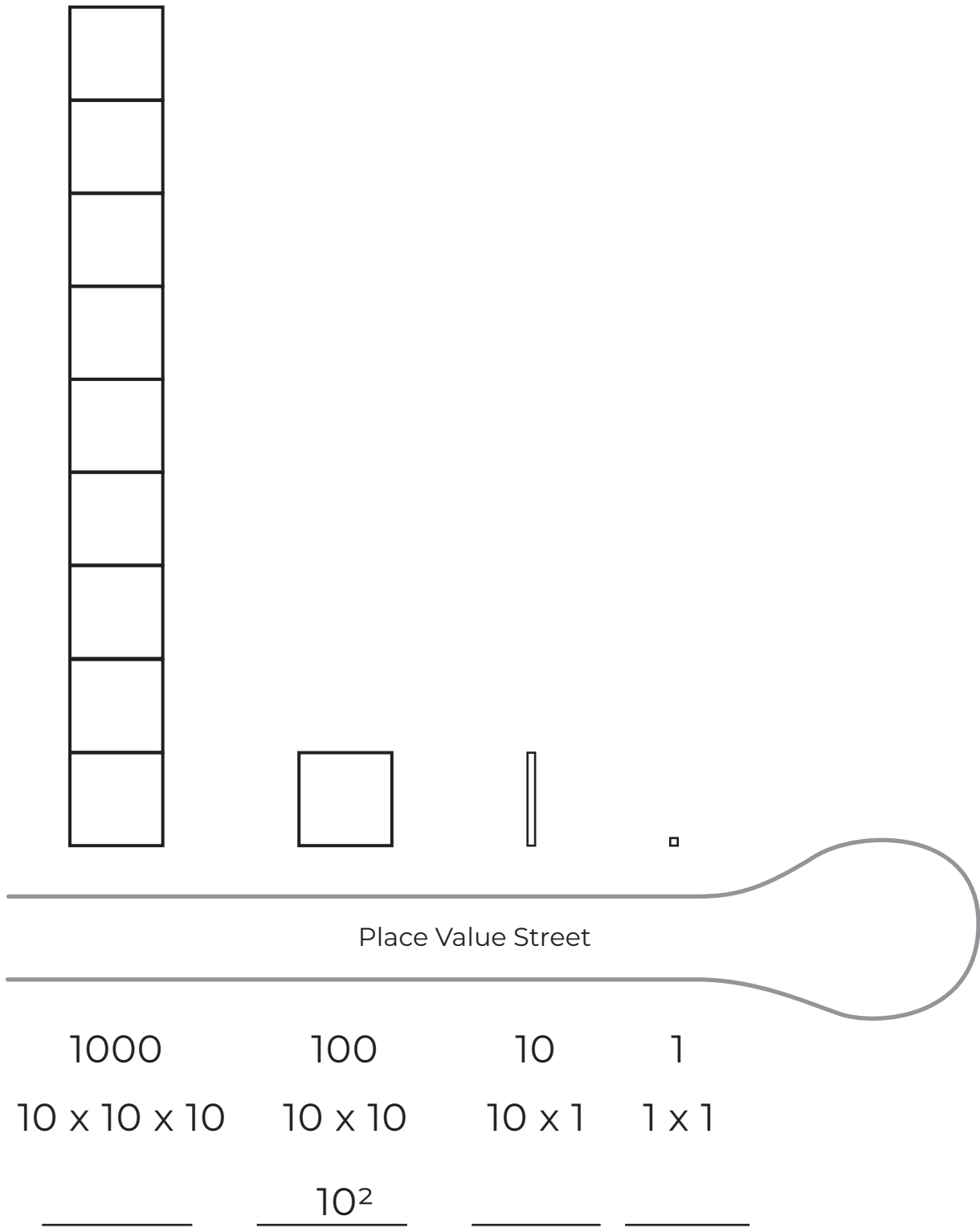
30 - Angles - Acute, Obtuse

1	2	3	4	5	6
☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐
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Whole Numbers - Expanded, Exponential Notation

Exponential notation provides us with yet another way to communicate life situations in a mathematical way. It simplifies the way we can write larger maths questions. With this comes some rules. For example 10^0 is representative of 1×1 . It is 'ten counted by itself zero times', enabling it to represent the units place.

Complete the following.



Build the following numbers then write the different ways you can write this in maths form.

Place Value Street

Standard

Place value

Expanded

Exponential

+

+

+

+

+

+

Place Value Street

Standard

Place value

Expanded

Exponential

+

+

+

+

+

+

Place Value Street

Standard

Place value

Expanded

Exponential

+

+

+

+

+

+

Whole Numbers - Expanded, Exponential Notation

Given the information below, complete the following and draw the number.



Standard	435	
Place value	+	+
Expanded	+	+
Exponential	+	+



Standard	291	
Place value	+	+
Expanded	+	+
Exponential	+	+

Place Value Street

Standard _____
Place value 300 + 30 + 3
Expanded + +
Exponential + +

Place Value Street

Standard _____
Place value + +
Expanded 4x100 + 3x10 + 1x1
Exponential + +

Place Value Street

Standard _____
Place value + +
Expanded + +
Exponential 2x10² + 1x10¹ + 5x10⁰

Whole Numbers - Expanded, Exponential Notation

Complete the following. Include brackets around each place to avoid confusion.

Example:

Standard notation 4156

Place value notation 4000 + 100 + 50 + 6

Expanded notation (4x1000) + (1x100) + (5x10) + (6x1)

Exponential notation (4x10³) + (1x10²) + (5x10¹) + (6x10⁰)

This may also be written as: $4 \times 10^3 + 1 \times 10^2 + 5 \times 10^1 + 6 \times 10^0$

Standard notation _____

Place value notation _____

Expanded notation (5x1000) + (0x100) + (6x10) + (9x1)

Exponential notation _____

Standard notation _____

Place value notation _____

Expanded notation _____

Exponential notation (5x10³) + (2x10²) + (1x10¹)

Standard notation _____

Place value notation 600 + 50 + 4

Expanded notation _____

Exponential notation _____

Standard notation _____

Place value notation _____

Expanded notation $(7 \times 10000) + (6 \times 1000) + (4 \times 100) + (3 \times 10) + (1 \times 1)$

Exponential notation _____

Standard notation _____

Place value notation _____

Expanded notation _____

Exponential notation $5 \times 10^5 + 4 \times 10^4 + 8 \times 10^3 + 6 \times 10^2 + 7 \times 10^0$

Standard notation _____

Place value notation _____

Expanded notation $(9 \times 100) + (6 \times 10) + (4 \times 1)$

Exponential notation _____

Standard notation $6,954,000$

Place value notation _____

Expanded notation _____

Exponential notation _____

Whole Numbers - Expanded, Exponential Notation

Express the following in expanded notation.

465

372

10,000

956,572

100,000

Express the following in exponential notation.

29

379

8,522

10,000

1,000,000,000

Write the following in standard notation, noting that sometimes you will see these with brackets, and other times not.

$$900 + 50 + 6 =$$

$$(8 \times 10^5) + (9 \times 10^4) + (3 \times 10^3) + (2 \times 10^2) + (3 \times 10^1) + (5 \times 10^0)$$

$$5 \times 10^3 + 6 \times 10^2 + 1 \times 10^1 + 9 \times 10^0 =$$

$$(4 \times 10,000) + (6 \times 1,000) + (5 \times 100) + (3 \times 1) =$$

$$8 \times 1,000 + 7 \times 100 + 6 \times 10 =$$

$$10,000 + 1,000 + 100 + 10 + 1 =$$

$$(5 \times 10^4) + (3 \times 10^2) + (7 \times 10^0) =$$

$$(6 \times 10^3) + (5 \times 10^2) + (4 \times 10^1) + (3 \times 10^0) =$$

$$1\,000\,000 + 90\,000 + 8\,000 + 700 + 70 + 7 =$$

$$3 \times 10^3 + 6 \times 10^2 + 8 \times 10^1 + 5 \times 10^0 =$$

Whole Numbers - Expanded, Exponential Notation - Cumulative Review

Convert the following to equivalent fractions.

$$\frac{1}{2} = \text{---} = \frac{3}{\text{---}} = \text{---} = \text{---} = \frac{6}{12} = \text{---} = \text{---} = \frac{9}{18} = \text{---}$$

$$\frac{4}{5} = \text{---} = \frac{12}{15} = \text{---} = \frac{20}{\text{---}} = \text{---} = \frac{\text{---}}{35} = \frac{32}{\text{---}} = \text{---} = \frac{\text{---}}{50}$$

$$\text{---} = \text{---} = \frac{6}{9} = \text{---} = \text{---} = \frac{12}{18} = \text{---} = \text{---} = \frac{18}{27} = \text{---}$$

$$\text{---} = \text{---} = \frac{3}{12} = \frac{\text{---}}{16} = \text{---} = \frac{6}{\text{---}} = \text{---} = \text{---} = \text{---} = \text{---}$$

$$\frac{4}{7} = \text{---} = \frac{12}{\text{---}} = \text{---} = \text{---} = \frac{24}{\text{---}} = \frac{\text{---}}{49} = \text{---} = \text{---} = \frac{40}{70}$$

Reduce the following fractions based on division rules and common factors. Show your working out.

$$\frac{96}{120}$$

$$\frac{84}{126}$$

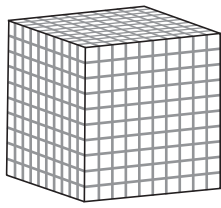
$$\frac{162}{216}$$

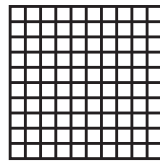
$$\frac{288}{360}$$

$$\frac{225}{300}$$

Whole Numbers - Expanded, Exponential Notation - Cululative Review

Label each diagram as a power of ten then write in exponential or standard notation.









$$10^0 = 1 \quad (\text{ten multiplied zero times, equals one})$$

$$10^1 =$$

$$10^2 =$$

$$10^3 = 10 \times 10 \times 10 = 1,000$$

$$10^4 =$$

$$1 =$$

$$10 =$$

$$100 = 10 \times 10 = 10^2$$

$$1,000 =$$

Answer the following and time yourself if you like, to see how many correct answers you can write in one minute.

Answers correct _____ Time taken _____

$\frac{100}{10} =$	$\frac{9}{3} =$	$\frac{4}{2} =$
$\frac{36}{6} =$	$6 \overline{)42}$	$\frac{16}{8} =$
$63 \div 9 =$	$\frac{50}{5} =$	$45 \div 9 =$
$36 \div 4 =$	$\frac{49}{7} =$	$8 \overline{)32}$
$\frac{16}{4} =$	$5 \overline{)20}$	$5 \overline{)25}$
$10 \overline{)100}$	$\frac{144}{12} =$	$27 \div 3 =$
$\frac{64}{8} =$	$54 \div 6 =$	$5 \overline{)100}$
$4 \overline{)8}$	$4 \overline{)36}$	$\frac{25}{5} =$
$72 \div 8 =$	$18 \div 2 =$	$3 \overline{)18}$
$\frac{121}{11} =$	$\frac{81}{9} =$	$9 \overline{)54}$



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PART 2 OF 2

**WORKBOOK SOLUTIONS
SAMPLE**

PURPLE LESSON TWO



Whole Numbers – Expanded, Exponential Notation

2|1

$$1000 = 10 \times 10 \times 10 = 10^3 \quad | \quad 100 = 10 \times 10 = 10^2 \quad | \quad 10 = 10 \times 1 = 10^1 \quad | \quad 1 = 1 \times 1 = 10^0$$

Standard 324

Place value $300 + 20 + 4$

Expanded $(3 \times 100) + (2 \times 10) + (4 \times 1)$

Exponential $(3 \times 10^2) + (2 \times 10^1) + (4 \times 10^0)$

Standard 141

Place value $100 + 40 + 1$

Expanded $(1 \times 100) + (4 \times 10) + (1 \times 1)$

Exponential $(1 \times 10^2) + (4 \times 10^1) + (1 \times 10^0)$

Standard 418

Place value $400 + 10 + 8$

Expanded $(4 \times 100) + (1 \times 10) + (8 \times 1)$

Exponential $(4 \times 10^2) + (1 \times 10^1) + (8 \times 10^0)$

2|2

Standard 435

Place value $400 + 30 + 5$

Expanded $(4 \times 100) + (3 \times 10) + (5 \times 1)$

Exponential $(4 \times 10^2) + (3 \times 10^1) + (5 \times 10^0)$

Standard 291

Place value $200 + 90 + 1$

Expanded $(2 \times 100) + (9 \times 10) + (1 \times 1)$

Exponential $(2 \times 10^2) + (9 \times 10^1) + (1 \times 10^0)$

Standard 333

Place value $300 + 30 + 3$

Expanded $(3 \times 100) + (3 \times 10) + (3 \times 1)$

Exponential $(3 \times 10^2) + (3 \times 10^1) + (3 \times 10^0)$

Standard **431**
Place value **$400 + 30 + 1$**
Expanded **$(4 \times 100) + (3 \times 10) + (1 \times 1)$**
Exponential **$(4 \times 10^2) + (3 \times 10^1) + (1 \times 10^0)$**

Standard **215**
Place value **$200 + 10 + 5$**
Expanded **$(2 \times 100) + (1 \times 10) + (5 \times 1)$**
Exponential **$(2 \times 10^2) + (1 \times 10^1) + (5 \times 10^0)$**

2/3

Standard **5,069**
Place value **$5000 + 0 + 60 + 9$**
Expanded **$(5 \times 1000) + (0 \times 100) + (6 \times 10) + (9 \times 1)$**
Exponential **$(5 \times 10^3) + (0 \times 10^2) + (6 \times 10^1) + (9 \times 10^0)$**

Standard **5,210**
Place value **$5000 + 200 + 10 + 0$**
Expanded **$(5 \times 1000) + (2 \times 100) + (1 \times 10) + (0 \times 1)$**
Exponential **$(5 \times 10^3) + (2 \times 10^2) + (1 \times 10^1)$**

Standard **654**
Place value **$600 + 50 + 4$**
Expanded **$(6 \times 100) + (5 \times 10) + (4 \times 1)$**
Exponential **$(6 \times 10^2) + (5 \times 10^1) + (4 \times 10^0)$**

Standard **76,431**
Place value **$70,000 + 6,000 + 400 + 30 + 1$**
Expanded **$(7 \times 10,000) + (6 \times 1,000) + (4 \times 100) + (3 \times 10) + (1 \times 1)$**
Exponential **$(7 \times 10^4) + (6 \times 10^3) + (4 \times 10^2) + (3 \times 10^1) + (1 \times 10^0)$**

Standard **548,607**
Place value **$500,000 + 40,000 + 8,000 + 600 + 0 + 7$**
Expanded **$(5 \times 100,000) + (4 \times 10,000) + (8 \times 1,000) + (6 \times 100) + (0 \times 10) + (7 \times 1)$**
Exponential **$(5 \times 10^5) + (4 \times 10^4) + (8 \times 10^3) + (6 \times 10^2) + (7 \times 10^0)$**

Standard **964**
Place value **$900 + 60 + 4$**
Expanded **$(9 \times 100) + (6 \times 10) + (4 \times 1)$**
Exponential **$(9 \times 10^2) + (6 \times 10^1) + (4 \times 10^0)$**

Standard **6,954,000**
Place value **$6,000,000 + 900,000 + 50,000 + 4,000$**
Expanded **$(6 \times 1,000,000) + (9 \times 100,000) + (5 \times 10,000) + (4 \times 1,000)$**
Exponential **$(6 \times 10^6) + (9 \times 10^5) + (5 \times 10^4) + (4 \times 10^3)$**

2/4

$465 = (4 \times 100) + (6 \times 10) + (5 \times 1)$
 $372 = (3 \times 100) + (7 \times 10) + (2 \times 1)$
 $10,000 = (1 \times 10,000)$
 $956,572 = (9 \times 100,000) + (5 \times 10,000) + (6 \times 1,000) + (5 \times 100) + (7 \times 10) + (2 \times 1)$
 $100,000 = (1 \times 100,000)$
 $29 = (2 \times 10^1) + (9 \times 10^0)$
 $379 = (3 \times 10^2) + (7 \times 10^1) + (9 \times 10^0)$
 $8,522 = (8 \times 10^3) + (5 \times 10^2) + (2 \times 10^1) + (2 \times 10^0)$
 $10,000 = (1 \times 10^4)$
 $1,000,000,000 = (1 \times 10^9)$

$900 + 50 + 6 = 956$
 $(8 \times 10^5) + (9 \times 10^4) + (3 \times 10^3) + (2 \times 10^2) + (3 \times 10^1) + (5 \times 10^0) = 893,235$
 $5 \times 10^3 + 6 \times 10^2 + 1 \times 10^1 + 9 \times 10^0 = 5,619$
 $(4 \times 10,000) + (6 \times 1,000) + (5 \times 100) + (3 \times 1) = 46,503$
 $8 \times 1,000 + 7 \times 100 + 6 \times 10 = 8,760$
 $10,000 + 1,000 + 100 + 10 + 1 = 11,111$

$$(5 \times 10^4) + (3 \times 10^2) + (7 \times 10^0) = 50,307$$

$$(6 \times 10^3) + (5 \times 10^2) + (4 \times 10^1) + (3 \times 10^0) = 6,543$$

$$1,000,000 + 90,000 + 8,000 + 700 + 70 + 7 = 1,098,777$$

$$3 \times 10^3 + 6 \times 10^2 + 8 \times 10^1 + 5 \times 10^0 = 3,685$$

2/5

$$1/2 = 2/4 = 3/6 = 4/8 = 5/10 = 6/12 = 7/14 = 8/16 = 9/18 = 10/20$$

$$4/5 = 8/10 = 12/15 = 16/20 = 20/25 = 24/30 = 28/35 = 32/40 = 36/45 = 40/50$$

$$2/3 = 4/6 = 6/9 = 8/12 = 10/15 = 12/18 = 14/21 = 16/24 = 18/27 = 20/30$$

$$1/4 = 2/8 = 3/12 = 4/16 = 5/20 = 6/24 = 7/28 = 8/32 = 9/36 = 10/40$$

$$4/7 = 8/14 = 12/21 = 16/28 = 20/35 = 24/42 = 28/49 = 32/56 = 36/63 = 40/70$$

$$96/120 \div 24/24 = 4/5$$

$$84/126 \div 42/42 = 2/3$$

$$162/216 \div 54/54 = 3/4$$

$$288/360 \div 72/72 = 4/5$$

$$225/300 \div 75/75 = 3/4$$

2/6

$$10^1 = 10 \times 1 = 10$$

$$10^2 = 10 \times 10 = 100$$

$$10^3 = 10 \times 10 \times 10 = 1,000$$

$$10^4 = 10 \times 10 \times 10 \times 10 = 10,000$$

$$1 = 10^0$$

$$10 = 10^1$$

$$100 = 10 \times 10 = 10^2 \text{ (answer given)}$$

$$1,000 = 10 \times 10 \times 10 = 10^3$$

2|6 cont.,

$$100/10 = 10$$

$$36/6 = 6$$

$$63 \div 9 = 7$$

$$36 \div 4 = 9$$

$$16/4 = 4$$

$$10 \overline{) 100} = 10$$

$$64/8 = 8$$

$$4 \overline{) 8} = 2$$

$$72 \div 8 = 9$$

$$121/11 = 11$$

$$9/3 = 3$$

$$6 \overline{) 42} = 7$$

$$50/5 = 10$$

$$49/7 = 7$$

$$5 \overline{) 20} = 4$$

$$144/12 = 12$$

$$54 \div 6 = 9$$

$$4 \overline{) 36} = 9$$

$$18 \div 2 = 9$$

$$81/9 = 9$$

$$4/2 = 2$$

$$16/8 = 2$$

$$45 \div 9 = 5$$

$$8 \overline{) 32} = 4$$

$$5 \overline{) 25} = 5$$

$$27 \div 3 = 9$$

$$5 \overline{) 100} = 20$$

$$25/5 = 5$$

$$3 \overline{) 18} = 6$$

$$9 \overline{) 54} = 6$$



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PART 2 OF 2

**STUDENT ASSESSMENTS
SAMPLE**

PURPLE LESSON TWO



Given our I-CRAVE methodology and the sequential, mastery-based approach of the Brighter Maths Program, these tests are provided as optional assessments.

The incorporation of paced release as a student progresses through each lesson building, drawing, writing and saying, ensures understanding before an algorithm is taught.

These assessments have been grouped into six units of five lessons each unit, enabling prompt intervention and ensuring confidence and enjoyment of maths as the student progresses. The final assessment reviews all content to ensure mastery before progress.

.....

Student's Name

Year

Record your results and the time taken for each unit assessment.

- ☐ **UNIT ONE | Lessons 1 – 5**
Results: Time taken:
- ☐ **UNIT TWO | Lessons 6 – 10**
Results: Time taken:.....
- ☐ **UNIT THREE | Lessons 11 – 15**
Results: Time taken:.....
- ☐ **UNIT FOUR | Lessons 16 – 20**
Results: Time taken:.....
- ☐ **UNIT FIVE | Lessons 21 – 25**
Results: Time taken:.....
- ☐ **UNIT SIX | Lessons 26 – 30**
Results: Time taken:.....
- ☐ **FINAL ASSESSMENT**
Results: Time taken:.....

UNIT ONE : Lesson 1 - Indices - Exponents

The words 'exponent', 'indices' and 'index numbers' are used interchangeably in different parts of the world. How do we identify these in a number?

Rewrite each of the following without an exponent (index) then calculate your answer.

$$3^4$$

$$10^2$$

$$3^3$$

$$5^6$$

Rewrite the following with an exponent. If possible, draw a picture that will show what you have calculated.

$$4 \times 4 \times 4 =$$

$$2 \times 2 \times 2 \times 2 \times 2 =$$

$$3 \times 3 \times 3 \times 3 =$$

$$5 \times 5 =$$

☐ UNIT ONE : Lesson 2 – Whole Numbers - Expanded, Exponential Notation

Complete the following to write the numbers in different mathematical forms.

Standard notation: 9, 562, 005

Place value notation:

Expanded notation:

Exponential notation:

Standard notation:

Place value notation: 700,000 + 30,000 + 5,000 + 90 + 1

Expanded notation:

Exponential notation:

Standard notation: 515,476

Place value notation:

Expanded notation:

Exponential notation:

Identify the name given to the way the following numbers are written.

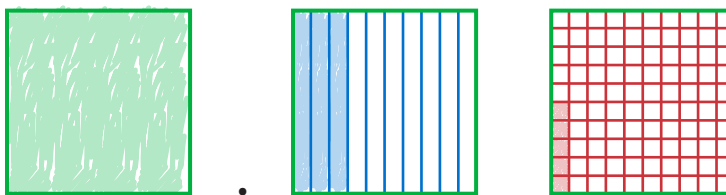
$10,000 + 5,000 + 900 + 80 + 6 =$

$(9 \times 10^2) + (8 \times 10^1) + (3 \times 10^0) =$

$(9 \times 1,000,000) + (5 \times 10,000) + (6 \times 1) =$

☐ UNIT ONE : Lesson 3 - Decimals - Expanded, Exponential Notation

Draw and/or write the following decimal numbers then complete the table to show in standard notation, place value notation, expanded notation, and exponential notation.



Standard notation:

Place value notation:

Expanded notation:

Exponential notation:

Standard notation:

3

.

7

5

Place value notation:

Expanded notation:

Exponential notation:

Standard notation:

1

.

0

8

Place value notation:

Expanded notation:

Exponential notation:

UNIT ONE : Lesson 3 – Decimals, Money

Write and then draw the following using decimal cards, with your unit being one dollar. Draw what the money would look like using your physical currency of dollar notes, dollar coins, and coins with a value less than one dollar.

Three dollars, two decidollars, five centidollars

\$

Decimal cards:

Money:

One five-dollar note, seven ten-cent coins, one five-cent coin

\$

Decimal cards:

Money:

\$20 + \$0.50 + \$0.05

\$

Decimal cards:

Money:

☐ UNIT ONE : Lesson 4 - Add Decimals

Calculate the following. Show your working out.

$$\begin{array}{r} 8.75 \\ + 3.15 \\ \hline \end{array}$$

$$1.7 + 3.927 =$$

$$\begin{array}{r} \$22.57 \\ + \$12.32 \\ \hline \end{array}$$

Last week our family spent \$225.30 on groceries. This week we spent \$185.95. How much money have we spent altogether in the last fortnight?

Write and solve your own life story based on the following questions.

$$4.50 + 6.75 =$$

$$\begin{array}{r} 7.2 \\ + 8.95 \\ \hline \end{array}$$

UNIT ONE : Lesson 5 – Subtract Decimals

Calculate the following. Show your working out.

$$\begin{array}{r} 8.75 \\ - 3.15 \\ \hline \end{array}$$

$$4.7 - 3.95 =$$

$$\begin{array}{r} \$22.57 \\ - \$12.32 \\ \hline \end{array}$$

Last week our family spent \$225.30 on groceries. Of that amount, we spent \$97.50 on meat. How much did we spend on everything else?

Write and solve your own life story based on the following questions.

$$12.45 - 8.70 =$$

$$\begin{array}{r} 7.20 \\ - 4.95 \\ \hline \end{array}$$



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FOCUSING ON FRACTIONS, DECIMALS & PERCENTS

PART 2 OF 2

**ASSESSMENTS SOLUTIONS
SAMPLE**

PURPLE LESSON TWO



UNIT ONE : Lesson 1 - Indices - Exponents

The words 'exponent', 'indices' and 'index numbers' are used interchangeably in different parts of the world. How do we identify these in a number?

These all refer to the mathematical method of showing that a number (the base) is multiplied by itself multiple times, written as a superscript to the right of the base.

Rewrite each of the following without an exponent (index) then calculate your answer.

$$3^4 = 3 \times 3 \times 3 \times 3 = 9 \times 3 \times 3 = 27 \times 3 = 81$$

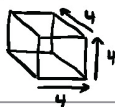
$$10^2 = 10 \times 10 = 100$$

$$3^3 = 3 \times 3 \times 3 = 9 \times 3 = 27$$

$$5^6 = 5 \times 5 \times 5 \times 5 \times 5 \times 5 = 25 \times 5 \times 5 \times 5 = 125 \times 5 \times 5 = 625 \times 5 \times 5 = 3,125 \times 5 = 15,625$$

Rewrite the following with an exponent. If possible, draw a picture that will show what you have calculated.

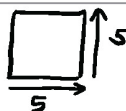
$$4 \times 4 \times 4 = 4^3$$



$$2 \times 2 \times 2 \times 2 \times 2 = 2^5$$

$$3 \times 3 \times 3 \times 3 = 3^4$$

$$5 \times 5 = 5^2$$



UNIT ONE : page 1/6

UNIT ONE : Lesson 2 - Whole Numbers - Expanded, Exponential Notation

Complete the following to write the numbers in different mathematical forms.

Standard notation: 9, 562, 005

Place value notation: 9,000,000 + 500,000 + 60,000 + 2,000 + 5

Expanded notation: $(9 \times 1,000,000) + (5 \times 100,000) + (6 \times 10,000) + (2 \times 1,000) + (5 \times 1)$

Exponential notation: $(9 \times 10^6) + (5 \times 10^5) + (6 \times 10^4) + (2 \times 10^3) + (5 \times 10^0)$

Standard notation: 735, 091

Place value notation: 700,000 + 30,000 + 5,000 + 90 + 1

Expanded notation: $(7 \times 100,000) + (3 \times 10,000) + (5 \times 1,000) + (9 \times 10) + (1 \times 1)$

Exponential notation: $(7 \times 10^5) + (3 \times 10^4) + (5 \times 10^3) + (9 \times 10^1) + (1 \times 10^0)$

Standard notation: 515,476

Place value notation: 500,000 + 10,000 + 5,000 + 400 + 70 + 6

Expanded notation: $(5 \times 100,000) + (1 \times 10,000) + (5 \times 1,000) + (4 \times 100) + (7 \times 10) + (6 \times 1)$

Exponential notation: $(5 \times 10^5) + (1 \times 10^4) + (5 \times 10^3) + (4 \times 10^2) + (7 \times 10^1) + (6 \times 10^0)$

Identify the name given to the way the following numbers are written.

10,000 + 5,000 + 900 + 80 + 6 = **Place value notation**

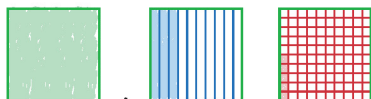
$(9 \times 10^2) + (8 \times 10^1) + (3 \times 10^0) =$ **Exponential notation**

$(9 \times 1,000,000) + (5 \times 10,000) + (6 \times 1) =$ **Expanded notation**

UNIT ONE : page 2/6

UNIT ONE : Lesson 3 - Decimals - Expanded, Exponential Notation

Draw and/or write the following decimal numbers then complete the table to show in standard notation, place value notation, expanded notation, and exponential notation.



Standard notation:

1 . 3 5

Place value notation:

1 + 0.3 + 0.05

Expanded notation:

$1 \times 1 + 3 \times 0.1 + 5 \times 0.01$

Exponential notation:

$1 \times 10^0 + 3 \times \frac{1}{10} + 5 \times \frac{1}{10^2}$



Standard notation:

3 . 7 5

Place value notation:

3 + 0.7 + 0.05

Expanded notation:

$3 \times 1 + 7 \times 0.1 + 5 \times 0.01$

Exponential notation:

$3 \times 10^0 + 7 \times \frac{1}{10} + 5 \times \frac{1}{10^2}$



Standard notation:

1 . 0 8

Place value notation:

1 + 0.0 + 0.08

Expanded notation:

$1 \times 1 + 0 \times 0.1 + 8 \times 0.01$

Exponential notation:

$1 \times 10^0 + 0 \times \frac{1}{10} + 8 \times \frac{1}{10^2}$

UNIT ONE : page 3/6

UNIT ONE : Lesson 3 - Decimals, Money

Write and then draw the following using decimal cards, with your unit being one dollar. Draw what the money would look like using your physical currency of dollar notes, dollar coins, and coins with a value less than one dollar.

Three dollars, two deciddollars, five centiddollars

\$ 3.25

Decimal cards:



Money:

(Various, based on possible coin combinations - check for accuracy of drawings, noting physical money is not proportionally accurate)

One five-dollar note, seven ten-cent coins, one five-cent coin

\$ 5.75

Decimal cards:



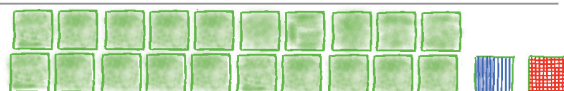
Money:

(Various)

\$20 + \$0.50 + \$0.05

\$ 20.55

Decimal cards:



Money:

(Various)

UNIT ONE : page 4/6

✓ **UNIT ONE : Lesson 4 - Add Decimals**
Calculate the following. Show your working out.

$$\begin{array}{r} 8.75 \\ + 3.15 \\ \hline 11.90 \end{array}$$

$$1.7 + 3.927 = 5.627$$

$$\begin{array}{r} \$22.57 \\ + \$12.32 \\ \hline \$34.89 \end{array}$$

Last week our family spent \$225.30 on groceries. This week we spent \$185.95. How much money have we spent altogether in the last fortnight?

$$\$225.30 + \$185.95 = \$411.25$$

We spent \$411.25 in the last fortnight.

Write and solve your own life story based on the following questions.

$$4.50 + 6.75 =$$

$$11.25$$

Various life questions

$$\begin{array}{r} 7.2 \\ + 8.95 \\ \hline 16.15 \end{array}$$

✓ **UNIT ONE : Lesson 5 - Subtract Decimals**
Calculate the following. Show your working out.

$$\begin{array}{r} 8.75 \\ - 3.15 \\ \hline 5.60 \end{array}$$

$$4.7 - 3.95 = 0.75$$

$$\begin{array}{r} \$22.57 \\ - \$12.32 \\ \hline \$10.25 \end{array}$$

Last week our family spent \$225.30 on groceries. Of that amount, we spent \$97.50 on meat. How much did we spend on everything else?

$$\$225.30 - \$97.50 = \$127.80$$

We spent \$127.80 on everything else.

Write and solve your own life story based on the following questions.

$$12.45 - 8.70 =$$

$$3.75$$

Various life questions

$$\begin{array}{r} 7.20 \\ - 4.95 \\ \hline 2.25 \end{array}$$

✓ **UNIT TWO : Lesson 6 - Metric Origins, Greek Prefixes**

Complete the following tables. Circle those measures that you are familiar with from your everyday life, and write what each unit could measure.

grams (g)	1000 g	100 g	10 g	1 g
prefix:	kilo	hecto	deca (deka)	—
symbolic:	k	h	da	g
could measure:	(Various answers)			
litres (L)	1000 L	100 L	10 L	1 L
prefix:	kilo	hecto	deca (deka)	—
symbolic:	k	h	da	L
could measure:	(Various answers)			
metres (m)	1000 m	100 m	10 m	1 m
prefix:	kilo	hecto	deca (deka)	—
symbolic:	k	h	da	m
could measure:	(Various answers)			

✓ **UNIT TWO : Lesson 7 - Metric Origins, Latin Prefixes**

Complete the following tables. Circle those measures that you are familiar with from your everyday life, and write what each unit could measure.

grams (g)	1 g	$\frac{1}{10}$ g	$\frac{1}{100}$ g	$\frac{1}{1000}$ g
prefix:	—	deci	centi	milli
symbolic:	g	dg	cg	mg
could measure:	(Various answers)			
litres (L)	1 L	$\frac{1}{10}$ L	$\frac{1}{100}$ L	$\frac{1}{1000}$ L
prefix:	—	deci	centi	milli
symbolic:	L	dL	cL	mL
could measure:	(Various answers)			
metres (m)	1 m	$\frac{1}{10}$ m	$\frac{1}{100}$ m	$\frac{1}{1000}$ m
prefix:	—	deci	centi	milli
symbolic:	m	dm	cm	mm
could measure:	(Various answers)			