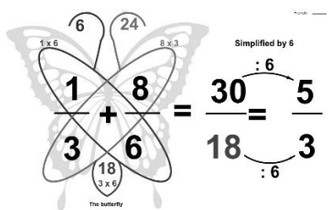
PORTSMOUTH SECONDARY SCHOOL

FORM 1 UNIT

TERM 2

2026-2026

DATE	SPECIFIC OBJECTIVES	CONTENT	ACTIVITIES	STRATEGIES	MATERIALS	EVALUATION
Wk 1	**COMPUTATION** **Fractions** **(A) Operations with Common Fractions** *At the end of this unit, students should be able to:* 1) Add and subtract fractions a) common denominators b) uncommon denominators using the **Butterfly Method** 2) Multiply fractions 3) Divide fractions	• **A fraction** is part of a whole. It is a measure of how a whole should be divided. • When adding/subtracting fractions with common denominators you simply add the numerators and the denominators stays the same. Simplify/reduce your answer. $\frac{1}{12}+\frac{7}{12}=\frac{8}{12}=\frac{\div 4}{\div 4}=\frac{2}{3}$  Simplify/reduce your answer where necessary to show that the numerator and the denominator have no common factors. • Multiply numerator by numerator and denominator by denominator. Simplify/reduce your answer where necessary to show that the numerator and the denominator have no common factors. OR **Cross Multiply** • Invert the second fraction then multiply. (This is the same as multiplying by the reciprocal of the second fraction.)	Discuss the difference between improper and proper fractions and instances where fractions are used in daily life. Students will be placed in pairs to solve questions involving addition and subtraction of improper fractions. Lucky dip competition – questions will be placed in a bag according to row. Paper folding, fraction strips, fraction tiles, shaded diagrams	Videos - YouTube Butterfly method for Fraction addition and Subtraction Games Models Demonstration	Text Fraction Chart Fraction tiles or fraction circles. Worksheet Fraction strips	Evaluate 1. $\frac{3}{5}+\frac{4}{7}$ 2. $\frac{4}{7}-\frac{1}{3}$ 3. $\frac{5}{9}\times\frac{21}{25}$ 4. $\frac{9}{28}\div\frac{3}{14}$ **GRADED HOMEWORK**

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Wk 2	4) Solve mixed Operations with common fractions.	• In solving problems dealing with mixed operations, we need to follow the order of arithmetic operations **BODMAS** $\frac{5}{2}+\frac{1}{4}\times\frac{3}{5}$ Perform this operation first $\frac{1}{4}\times\frac{3}{5}$, since BODMAS states multiplication comes before addition. The result is $\frac{3}{20}$ Followed by the addition. $\frac{5}{2}+\frac{3}{20}$ *Butterfly method* $\frac{100+6}{40}=\frac{106}{40}\div 2=\frac{53}{20}$ $\frac{53}{20}$ *(Final answer)*	• Students will individually solve questions. • Once corrected, they will be assigned to a student who is having difficulties. • Students will also come to the board to attempt questions as well as explain each step of his or her answer. • Funbrain.com	Illustration Peer tutoring Co-operative Learning	Text Prepared questions Handouts with worked examples Worksheets	Evaluate 1. $\frac{\frac{11}{5}}{\frac{4}{5}-\frac{3}{4}}$ 2. $\frac{5}{12}-\frac{7}{13}\div\frac{3}{26}$ 3. $\frac{3}{5}\times\left(\frac{1}{2}+\frac{2}{9}\right)$ **QUIZ**

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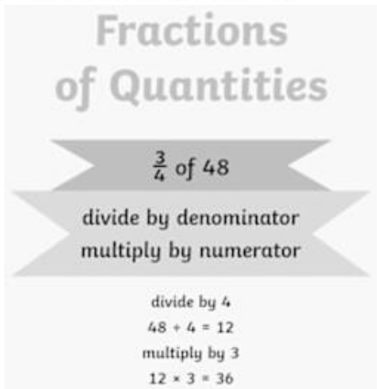
Wk 3	5) Fraction of Quantity 6) Calculate the whole from fractions	• This involves the operation OF. • 'OF' is replaced with the multiplication sign. • Make the whole number a fraction by using 1 as the denominator. • Then multiply. **OR** • Divide the whole number by the denominator • The answer you get, multiply it by the numerator and it will result in the answer.  E.g. The gas tank in Henry's car holds 4 gallons when it is $\frac{2}{3}$ full. How much gas does the gas tank hold when it is full? $4 \div 2 = 3$ $2 \times 3 = 6$ The tank holds 6 gallons when full.	• Students will formulate examples of their own and share with class. • Students will use real world examples and share with class. Solving of questions which involve everyday life.	YouTube videos Handout of rules to staple in exercise books Charts Demonstration	Devices Texts Google classroom Worksheets Handouts	1. What is $\frac{3}{8}$ $of \$40$? 2. Ann spent $\frac{1}{5}$ of her allowance on chocolate and $\frac{1}{6}$ on magazines. What fraction of her allowance did she spend? 3. In a class of 35 students $\frac{3}{7}$ take Geography and $\frac{2}{7}$ take History. How many students take a) Geography b) History? **TEST**

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<tr>
<td>Wk 4</td>
<td>COMPUTATION
Decimals
7) Compare and order decimals in order and size.

8) Approximate decimals
a) to whole numbers

b) to decimal places

c) Significant figures</td>
<td>A decimal fraction is a way of expressing a proper fraction as a number in base 10, using the place value system.
<table>
<tr><td>1000s</td><td>100s</td><td>10s</td><td>Units</td><td>.</td><td>10th</td><td>100ths</td><td>1000ths</td></tr>
<tr><td></td><td>5</td><td>1</td><td>6</td><td></td><td>9</td><td>8</td><td>2</td></tr>
</table>

Ascending -least to greatest (smallest to largest)
Descending – greatest to least (largest to smallest)
$>$ greater than
$<$ less than
Symbol for approximation is $\approx$

<u>Approximation- Whole Numbers</u>
In approximating a decimal number correct to the nearest whole number, we must look at the digit value of the first decimal place. If this number is;
a) ≥ 5, then we add 1 to the whole number part.
b) < 5, then the whole number part remains the same.

<u>Approximation- Decimal Place</u>
In approximating a decimal number to the n decimal place, we have to look at the digit value in the (n +1) th decimal place value. If this number is;
a) ≥ 5, then we add 1 to the n decimal place digit
b) < 5, then the n decimal place digit remains the same.
<u>Approximation- Significant Figures</u>
Pg 69- Mathematic A complete course</td>
<td>

Teacher will facilitate discussion with students on the importance of decimals.
Students will use the place value chart to determine the place value of a digit.
Students will be placed in pairs to solve questions on approximation.
Students will make up questions and quiz each other.

</td>
<td>Discussion

Peer tutoring

Worked examples of concepts.</td>
<td>Worksheets

YouTube videos

Calculator

Place value chart</td>
<td>Arrange the following in order from smallest to largest.
a) 0.3, 0.04, 2.006, 0.43
b) 1.35, 0.1, 0.85, 0.2

Round these decimals to the nearest 10, 100.
<table>
<tr><td></td><td colspan="2">Nearest</td></tr>
<tr><td></td><td>10</td><td>100</td></tr>
<tr><td>1.35</td><td></td><td></td></tr>
<tr><td>105.93</td><td></td><td></td></tr>
<tr><td>6.74</td><td></td><td></td></tr>
</table>
Round these to;
<table>
<tr><td></td><td>1 dp</td><td>2 dp</td></tr>
<tr><td>1.354</td><td></td><td></td></tr>
<tr><td>0.748</td><td></td><td></td></tr>
<tr><td>1.937</td><td></td><td></td></tr>
</table>
Round these to;
<table>
<tr><td></td><td>1 sf</td><td>3sf</td></tr>
<tr><td>1.354</td><td></td><td></td></tr>
<tr><td>0.748</td><td></td><td></td></tr>
<tr><td>1.937</td><td></td><td></td></tr>
</table>
</td>
</tr>
</table>

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Wk 5	9) Express decimals in Standard Form or (Scientific Notation)	• Any number that we can write as a decimal number, between 1.0 and 10.0, multiplied by a power of 10 is said to be in standard form. **(The decimal part must be more than 0 but less 10.** • **To figure out the power of 10, think "how many places do I move the decimal point?"** • When the number is 10 or greater, the decimal point has to move t**o the left** and the power 10 is **positive.** • When the number is smaller than 1, the decimal point has to move **to the right** and the power of 10 is **negative**. Example: 0.0055 is written 5.5×10^{-3} The decimal point was moved 3 places to the right. Therefore, the power is negative. Why use it? *Because it makes it easier when dealing with very big or very small numbers, which are common in Scientific and Engineering work.*	• Students will be placed in groups to discuss the importance of scientific notation. • Students will use scientific notation to solve real world problems. • Students will discuss the difference between standard form and expanded form.	Demonstration Group Discussion Questioning Discussion	Devices to access Google Classroom Live worksheets Text Worksheets	Express the following in standard form. a) 7438 b) 15.78 c) 0.086 d) 12436.3 e) 62 f) 0.748 **GRADED HOMEWORK**

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Wk 6	10) Convert a) Decimals to Fractions b) Fractions to Decimals 11) Add and subtract decimals	• To convert a decimal fraction to a common fraction, write it as a fraction with a denominator which is a multiple of 10 and then reduce to its *lowest terms.* E.g. 0.75 = $\frac{75}{100} = \frac{3}{4}$ • To convert a fraction to a decimal, find an equivalent fraction with a denominator that is a multiple of 10. For example; $\frac{2}{5} = \frac{4}{10}$; four tenth = 0.4 $\frac{21}{50} = \frac{42}{100}$, forty-two hundredths is four tenths and two hundredths. • To add or subtract decimals, place the decimal points one below the other, ensuring that the decimal points are in line and that tenths and hundredths etc. are below each other. Insert **zero** into any empty places to the right of the decimal point to act as a place holder. E.g. 11.234 + 3.09 = 11.234 + 3.090 14.324	• Students will be randomly selected to create their own questions and present them to the class. • Who am I? *I am a proper fraction. My decimal equivalent is 0.6. My denominator is 20?* • Teacher will use manilla paper to create an item list. • Students will be given a shopping list. • Students will add and subtract using items from the list.	Demonstration Use of place value chart Games Questioning	Text Google Classroom Work Sheets Devices	Convert the following decimals to fractions; a) 0.38 b) 7.5 c) 0.4 Convert the following fractions to decimals; a) $\frac{1}{4}$ b) $\frac{2}{25}$ Calculate the following; a) 2.5 + 3.7 b)7.78 + 2.33 c) 6.3 – 3.1 d) 5.81 – 4.9999 Rosa has a $20 bill. She bought a packet of biscuit for $4.95. How much change was she given? **QUIZ**

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<tr>
<td>Wk 7</td>
<td>12) Multiply and Divide Decimals

a) by powers of ten

b) by whole numbers

c) by decimals</td>
<td><u>Multiply by powers of 10</u> - move the decimal to the right the number of spaces according to the number of zeros in the power of 10.

<u>Dividing by powers of 10</u> – move the decimal to the left the number of spaces according to the number of zeros in the power of 10.

<u>Multiplying by a whole number</u>. Multiply as you would with whole numbers. Count the total number of decimal places in your factors. Move the decimal point in the product one place to the left for each decimal place you counted.

<u>Dividing by whole numbers</u>- put the decimal point in the answer directly above the decimal point in the dividend.

<u>Dividing by decimals</u>

Mathsisfun.com/dividing-decimals</td>
<td>Students will attempt question from text.

Use of the board to work examples.

Peer tutoring where necessary.

Students will compare and discuss the different computations.</td>
<td>Peer tutoring

Discussion

Cooperative Learning

Demonstration

Questioning</td>
<td>Textbook

Additional Resources - math connect 2)

Work sheets

Manilla Paper</td>
<td>1. Complete the following tables;

a)
<table>
<tr><th>No.</th><th>×10</th><th>×100</th><th>×1000</th></tr>
<tr><td>37</td><td></td><td></td><td></td></tr>
<tr><td>2.63</td><td></td><td></td><td></td></tr>
</table>
b)
<table>
<tr><th>No.</th><th>/10</th><th>/100</th><th>/1000</th></tr>
<tr><td>82</td><td></td><td></td><td></td></tr>
<tr><td>4.617</td><td></td><td></td><td></td></tr>
</table>
2. What is the cost of 25 articles at $2.35 each?

3. Beef is sold at a $14.32 a kilogram. What is the cost of 0.36 kg of beef?

TEST</td>
</tr>
</table>

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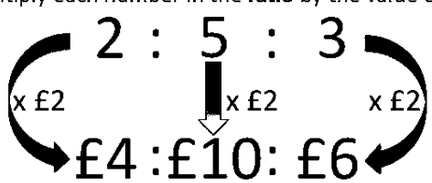
Wk 8	**Ratio and Proportional Parts** 13) a) i) Define a ratio ii) Write as a ratio the relationship between two quantities. b) Understand the relationship between fractions and ratios. c) Write ratios in simplest form	Ratio is a relationship between two or more quantities. Ratio is written in the form 2:3 or (2 to 3). **RULES FOR SOLVING RATIO PROBLEMS.** 1. **When writing ratios, the numbers should be written in the order in which the problem asks for them.** For example: There were 4 girls and 7 boys at the birthday party. What is the ratio of girls to boys? Hint: The question asks for girls to boys; therefore, girls will be listed first in the ratio. 4 girls to 7 boys 4 girls : 7 boys $\frac{4 \text{ girls}}{7 \text{ boys}}$ In a cricket match, there are 50 members of which 28 are females. The ratio of male to female is 22:28 22:28 written as a fraction is $\frac{22}{28}$. A ratio should always be written in its simplest form. E.g. 22:28 is the same as 11:14 Divide both sides of the ratio by the same number 2. The ratio of 3:5 can be expressed as the fraction $\frac{3}{5}$.	• Students will create ratios from items in the classroom. • Students will be paired. One student will write any fraction and the other will represent this fraction as a ratio and vice versa. • Each pair will then present 1 question on the board. • A randomly selected pair will come to the board and write any of the ratios on the board in simplest form.	Demonstration showing all working where necessary. Brainstorming Peer tutoring Guide students	Test Reference Material Work sheet Videos Handouts	In 5th form there are 92 students of which 40 are boys. Express the following as a ratio in its simplest form and as a fraction. a) the ratio of boys to girls b) the ratio of girls to the total number of students c) The ratio of the total number of students to boys.

DATE	SPECIFIC OBJECTIVES	CONTENT	ACTIVITIES	STRATEGIES	MATERIALS	EVALUATION
Wk9	d) Divide a quantity in a given ratio e) Proportional parts word problems	Share £20 in the ratio 2:5:3 1) Find the total number of parts 2 + 5 + 3 = 10 2) Divide the **amount** by the total number of parts £20 ÷ 10 = **£2** = 1 part 3) Multiply each number in the **ratio** by the value of **1 part**  Word Problems **Always find the value of 1 part.** <u>Example 1</u> A sum of money is divided among two friends in the ratio 4:11. If the smaller amount is $420, determine the larger amount. Given that 4 proportional parts = $420, then 1 proportional part is $ 420 ÷ 4 = $105 If the next friend received 11 proportional parts and 1 part = $105 then 11 parts is 11 × $105 = $1155	• Students will be placed in small groups to attempt questions from worksheet. • Discuss answers	Illustration Peer tutoring Cooperative learning Discussion	Worksheet Google classroom Videos Calculator	1) Share 12 mangoes in the ratio 1: 5 2) $24 was shared among two boys. If one received $6 and the other received $18, find the ratio used to share the money. 3) Two lengths are in the ratio 7:8. If the second length is 273m. What is the second length. 4) A sum of money was divided between two friends, Karen and Natasha in the ratio 2:5. If Natasha received $30 more than Karen, calculate the sum of money shared.

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		<u>Example 2</u> Sweets were divided between two friends, Josh and Nathan in the ratio 2:7. If Nathan received 60 sweets more than Karen, calculate the total sweets shared. Find the difference between the portions 2:7 7 – 2 = 5 60 sweets is also the difference of portions To find 1 part, divide both differences 60/5 = 12 1 portion = 12 sweets The total portion or shares for the ratio 2:7 = 2 + 7 =9 If 1 portion is 12 sweets, then 9 portions = 108 sweets				GRADED GROUP WORK TEST