GCSE Foundation
Unit 5: FDP, Ratio & Proportion and Compound Measures
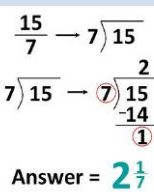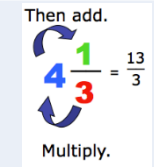
Key Strategies- Fraction Operations

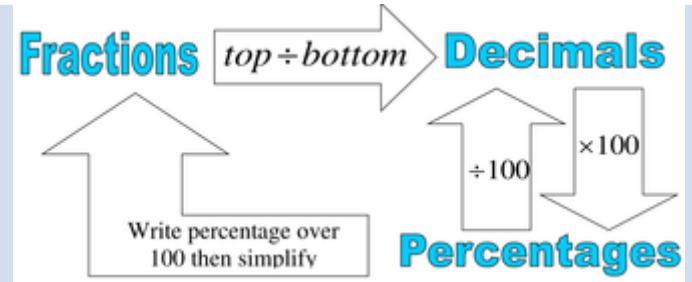|	
Adding and Subtracting	• The denominators must be the same. • In order to do this find the lowest common multiple for each denominator. • Remember to multiply the numerator and denominator by the same number. • Then add the fractions together.
Multiplying	Multiply the numerators and denominators
Dividing	• Keep the first fraction • Flip the second fraction (take the reciprocal) • Change the divide sign to multiply

Remember to simplify your answers

When calculating with mixed numbers, you must convert them to improper fractions first.

Mixed numbers to improper fractions	• Multiply the number by the denominator • Add this to the numerator	Then add. $4\frac{1}{3} = \frac{13}{3}$ Multiply.
Improper fractions to mixed numbers	• Divide the numerator by the denominator • The remainder is now the numerator	$\frac{15}{7} \rightarrow 7)\overline{15}$ $7)\overline{15} \rightarrow 7)\dfrac{2}{15}$ $\dfrac{-14}{①}$ Answer = $2\frac{1}{7}$

Key Concepts- Converting between Fractions, Decimals and Fractions.

Fractions → $top \div bottom$ → Decimals
$\times 100$
$\div 100$
Write percentage over 100 then simplify
Percentages

Key Concepts- Percentages

Finding percentages of amounts	To find 10%- divide by 10 To find 1%- divide by 100 Find the various different percentages and add them together.
Percentage change	$Original\ amount\ \times multiplier = new\ amount$ Multipliers: 15% increase means 100%+ 15%= 115% 115%=1.15 15% decrease means 100% - 15%= 85% 85%=0.85
Simple Interest	Calculate the interest from the original amount, this value will be added for each year of the investment. Eg: Sally invests £500 and gains 8% simple interest per year, for 6 years. How much interest does she make 8% of 500= £40 £40 x 6= £240
Compound interest	$Original\ amount\ \times multiplier^{n} = new\ amount$

number of years

Key Ideas- Ratios

Simplifying and Equivalent Ratios	Multiply and divide ratios by same value in order to keep them in proportion during calculations.
The Unitary Method 1:n n:1	You write ratios in this form when you want to compare one part to another. Divide each side by the same amount Eg: Simplify 5:7 $1:\frac{7}{5}$
Sharing in a ratio	**A**dd the parts together **D**ivide the total **A**nd **M**ultiply this by each part of the ratio Eg: Share £18 in the ratio 1:3 1+3=4 18÷4= £4.50 1x4.50:3 x 4.50 4.50:13.50 Check your answer adds to the initial total

$Original\ amount \times multiplier = new\ amount$
Use this formula when calculating **reverse percentages.**

Key Formulae

Speed	$\dfrac{distance}{time}$
Density	$\dfrac{weight}{volume}$
Fuel Consumption	$\dfrac{price}{gallons}$

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Calculate the following (use the middle box for calculations)

$\frac{3}{4} + \frac{2}{5}$		
$\frac{5}{6} - \frac{1}{3}$		
$1\frac{3}{5} + \frac{4}{6}$		
$\frac{3}{7} \times \frac{4}{5}$		
$\frac{3}{7} \times 1\frac{4}{5}$		
$2\frac{1}{3} \div \frac{4}{5}$		
$\frac{1}{3} \times \frac{3}{4} + \frac{2}{5}$		

Complete the table: Fraction- Decimal- Percentage

$\frac{2}{5}$		%
—	0.15	%
—		12.5%
$1\frac{2}{5}$		%

Worded problems

A shop has a 15% sale, a coat is £38. What is its new price?	
A shop has a 20% sale, a dress now costs £40 how much did it cost before the sale?	
Claire and Ben share £36 in the ratio 5:7 how much more money does Ben get?	
I invest £400 which pays 3% simple interest pa. How much do I have in my account after 4 years?	

Complete the table

Ratio	Simplified	1:n	n:1
4:10			
6:15			
35:15			
27:6			

Calculate the following

Write 36 out of 60 as a percentage	
Find $\frac{3}{8}$ of 32	
Find 17% of 64	
12.5% increase	

Complete the table with the correct multiplier

5% increase	
8% decrease	
1.5% decrease	
12.5% increase	

Complete the table with the correct percentage change

1.1	
0.75	
1.02	
0.83	