

Mathematics

Topic 1: Decimals and Percentages (Unit 6)

Topic 2: Geometry, Measurement & Statistics (Integrated Skills)

Topic 3: Ratio and Proportion (Unit 7)

PowerPoint Presentations saved on TEAMS (Week 5 & 6)

(Study material for End of Term Assessment)

Maths Progress international 11- 14 Book 7

Reference:

Pgs. 130 - 153

Students will study and practise:

- Addition and subtraction of decimals
- Multiplication of decimals
- Calculating percentages of an amount
- Converting between decimals, fractions and percentages
- Simplifying fractions and converting between mixed numbers and improper fractions
- Ordering decimals, fractions and whole numbers (ascending & descending)
- Comparing values using place value and conversion strategies

(Linked with Unit 6 content and Cambridge progression skills)

Students will study and practise:

- Properties of triangles and quadrilaterals
- Finding missing angles using angle sum rules
- Perimeter
- Area
- Finding missing sides using given measurements
- Interpreting bar graphs
- Calculating totals and mean (average) values

PowerPoint Presentations saved on TEAMS (Week 7 & 8)

(Study material for End of Term Assessment)

Maths Progress international 11- 14 Bk7

Reference:

Pgs. 155 - 175

Students will study and practise:

- Writing ratios in simplest form
- Converting ratios using equivalent ratios
- Sharing quantities in a given ratio
- Solving real-life ratio problems
- Direct proportion (unitary method & **EDISON** Global Academy)
- Inverse proportion (work-rate and quantity relationships)
- Proportional reasoning using tables and simple graphs

Study Material Practice Sheet 1: Decimals, Fractions, Percentages & ORDERING**Addition and subtraction of Decimals**

To add or subtract decimals: Line up the decimal points, add zeros if needed, then add or subtract like whole numbers. Keep the decimal point in the same place.

Examples

Perform Addition or Subtraction

1. Solve $12.4 + 3.56$ (Line Up the Decimal Points)

$$\begin{array}{r} 12.40 \\ + 3.56 \\ \hline 15.96 \end{array}$$

2. A notebook costs 12.45 QAR. A student pays with 20 QAR. How much change will he receive?

$$\begin{array}{r} 20.00 \\ - 12.45 \\ \hline 7.55 \end{array}$$

He received change of 7.55QAR

Now complete the following calculations:

1 Work out.

$18.6 + 4.75 =$	$25.4 - 9.86 =$	$7.85 + 12.9 =$	$30 - 14.68 =$

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Multiplication of Decimals

To multiply decimal, Ignore the Decimal First, Multiply Normally, Count and place the decimal Places

Examples:

1. Solve 2.35×1.2

Ignore decimals: $235 \times 12 = 2820$.

Count decimal places: 2.35 has 2, 1.2 has 1 $\rightarrow$ total = 3.

Place decimal: 2820 $\rightarrow$ move 3 places $\rightarrow$ 2.820.

Simplify: 2.82.

Answer: $2.35 \times 1.2 = 2.82$.

2. A metal rod measures 0.357m. Estimate the length of metal needed to make 6 of these rods.

Ignore decimals: $357 \times 6 = 2142$

Count decimal places: 0.357 has 3,

Place decimal: 2142 $\rightarrow$ move 3 places $\rightarrow$ 2.142.

Answer: $0.357 \times 6 = 2.142$

Now do these:

Multiply the following decimals. Remember: *ignore the decimal $\rightarrow$ multiply as whole numbers $\rightarrow$ count decimal places $\rightarrow$ place decimal in answer.*

Solve the following using the method shown in the examples above.

$3.2 \times 4.5 =$	$2.35 \times 1.2 =$	$0.6 \times 8 =$

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Calculating Percentages of an Amount

To find X% of a given amount, follow this formula:

Percentage of amount = $\frac{\text{Percentage}}{100} \times \text{Amount}$

100

- Write the percentage as a fraction over 100.
- Multiply this fraction by the given amount.
- Simplify the multiplication

Examples

1. Find 35% of 80?

$$= \frac{35}{100} \times 80$$

$$= 7 \times 4$$

$$= 28\%$$

2. A scarf costs 120 QR. A discount of 30% is given. What is the new price?

$$\text{Percentage discount} = \frac{30}{100} \times 120 = 36$$

$$\text{New price: } 120 - 36 = 84\text{QR}$$

Now solve the following:

Calculate 10% of 120 =	Find 25% of 200	Find 15% of 120	A jacket costs 160 QAR and is reduced by 20%. Find the discount.

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Converting Between Fractions, Decimals, and Percentages

- Fraction → Percentage: divide numerator by denominator, then multiply by 100.
- Percentage → Fraction: Write the percent over 100 and simplify.
- Percentage → Decimal: divide by 100 by moving in the decimal point.
- Decimal → Percentage: multiply by 100 by moving out the decimal point.
- Decimal → Fraction: use the digits after the decimal as the numerator. Use the place value as the denominator.

Examples:**1. Convert 27% to decimal**

$$\frac{27}{100}$$

$$= 0.27 \text{ (Percentage} \rightarrow \text{Decimal: divide by 100)}$$

2. Change 0.78 to percentage

$$0.78 \times 100$$

$$= 78\% \text{ (Decimal} \rightarrow \text{Percentage: multiply by 100)}$$

3. Change 45% to fraction

$$\frac{45}{100} = \frac{45 \div 5}{100 \div 5}$$
$$= \frac{9}{20}$$

4. Convert $\frac{4}{5}$ to percentage

$$\frac{4}{5} \times 100 \text{ (Fraction} \rightarrow \text{Percentage: divide numerator by denominator, then multiply by 100)}$$

$$= 400 \div 5$$

$$= 80\%$$

5. Convert 0.67 to fraction

$$\frac{67}{100}$$

Now do these:

1. Fill in the blanks (converting from decimals to percentage and percentage to decimals)

Percentage	Decimals
	0.47
65%	
	0.54
89%	

2. Convert.

- a) Write $\frac{9}{4}$ as a mixed number = _____
- b) Write $3\frac{2}{7}$ as an improper fraction = _____
- c) Write 0.75 as a fraction = _____
- d) Write 65% as a fraction = _____

3. ORDERING NUMBERS

- a. Put these decimals in ascending order (smallest first):

0.45 0.5 0.375 0.62

- b. Put these numbers in descending order (largest first):

3.2 2.85 3.05 2.9

- c. Order the following from smallest to largest:

$\frac{1}{2}$, 0.6, 45%, 0.75



d. Order these numbers:

1.25, $\frac{5}{4}$, 1.2, $1\frac{1}{2}$

e. Challenge (Reasoning):

Which is greater: $\frac{3}{5}$ or 0.58?

Explain your answer. _____