

# 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.

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

## Multiplication of Decimals

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

### Examples:

1. Solve  $2.35 \times 1.2$

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

Count decimal places: 2.35 has 2, 1.2 has 1 → total = 3.

Place decimal: 2820 → move 3 places → 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 → move 3 places → 2.142.

**Answer:**  $0.357 \times 6 = 2.142$

### Now do these:

Multiply the following decimals. Remember: *ignore the decimal → multiply as whole numbers → count decimal places → 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:

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

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

### Examples

1. Find 35% of 80?

$$\begin{aligned} &= \frac{35}{100} \times 80 \\ &= 7 \times 4 \\ &= 28\% \end{aligned}$$

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. \_\_\_\_\_