

# Reverse Percentages (F)

A collection of 9-1 Maths GCSE Sample and Specimen questions from AQA, OCR, Pearson-Edexcel and WJEC Eduqas.

Name:	@MrsHsNumeracy
Total Marks:	

1. When water freezes into ice its volume increases by 9%.

What volume of water freezes to make  $1962 \text{ cm}^3$  of ice?

$100\% + 9\% = 109\%$  OR  $1962 \div 1.09$   
 $\div 109 \rightarrow 1962 \text{ cm}^3 = 109\%$   
 $\rightarrow 18 \text{ cm}^3 = 1\%$   
 $\rightarrow 1800 \text{ cm}^3 = 100\%$   
 $\times 100$

..... 1800 .....  $\text{cm}^3$  [3]

2. In a sale, normal prices are reduced by 20%.

The normal price of a coat is reduced by £15

Work out the normal price of the coat.

OR  $\pounds 15 \div 0.2$

$\pounds 15 = 20\%$   
 $\pounds 0.75 = 1\%$   
 $\pounds 75 = 100\%$   
 $\div 20$   
 $\times 100$

£..... 75 ..... [3]

3. In a sale, the original price of a bag was reduced by  $\frac{1}{5}$

The sale price of the bag is £29.40

Work out the original price.

OR  $\pounds 29.40 \div 0.8$

$1 - \frac{1}{5} = \frac{4}{5}$   
 $\pounds 29.40 = \frac{4}{5} \text{ original price}$   
 $\text{original price} = 5 \times \pounds 29.40 \div 4 = \pounds 36.75$  [3]

4. The pressure at sea level is 101 325 Pascals.

Any rise of 1 km above sea level decreases the pressure by 14%

For example,

at 3 km above sea level the pressure is 14% less than at 2 km

Work out the pressure at 4 km above sea level.

Give your answer to 2 significant figures.

$$100 - 14 = 86\% \quad \text{OR} \quad \begin{array}{l} \text{sea level} \\ +1 \text{ km} \\ +2 \text{ km} \\ +3 \text{ km} \\ +4 \text{ km} \end{array}$$

$$101325 \times 0.86^4$$

$$= 55425.6$$

Pressure	14%
101 325	14% = 14185.5
87139.5	12199.53
74939.97	10491.5958
64448.3742	9022.71...
55425.6	

55000 Pascals [4]

5. Complete the table below.

Original amount	After a decrease of	
	40%	2%
£ 820	£492	£803.60

$$100\% - 40\% = 60\%$$

$$\begin{array}{l} \div 60 \rightarrow \pounds 492 = 60\% \\ \pounds 820 = 1\% \\ \times 100 \rightarrow \pounds 820 = 100\% \end{array} \quad \begin{array}{l} \div 60 \\ \times 100 \end{array}$$

$$\text{OR } \pounds 492 \div 0.6$$

$$2\% \text{ of } 820 \quad [4]$$

$$= 8.2 \times 2 = \pounds 16.40$$

$$\pounds 820 - \pounds 16.40$$

$$= \pounds 803.60$$

OR

$$\pounds 820 \times 0.98$$

## CREDITS AND NOTES

Question	Awarding Body
1	OCR
2	Pearson Edexcel
3	AQA
4	AQA
5	WJEC Eduqas

### Notes:

These questions have been retyped from the original sample/specimen assessment materials and whilst every effort has been made to ensure there are no errors, any that do appear are mine and not the exam board s (similarly any errors I have corrected from the originals are also my corrections and not theirs!).

Please also note that the layout in terms of fonts, answer lines and space given to each question does not reflect the actual papers to save space.

These questions have been collated by me as the basis for a GCSE working party set up by the GLOW maths hub - if you want to get involved please get in touch. The objective is to provide support to fellow teachers and to give you a flavour of how different topics "could" be examined. They should not be used to form a decision as to which board to use. There is no guarantee that a topic will or won't appear in the "live" papers from a specific exam board or that examination of a topic will be as shown in these questions.



### Links:

AQA <http://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300>

OCR <http://ocr.org.uk/gcsemaths>

Pearson Edexcel <http://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html>

WJEC Eduqas <http://www.eduqas.co.uk/qualifications/mathematics/gcse/>

### Contents:

This version contains questions from:

AQA – Sample Assessment Material, Practice set 1 and Practice set 2

OCR – Sample Assessment Material and Practice set 1

Pearson Edexcel – Sample Assessment Material, Specimen set 1 and Specimen set 2

WJEC Eduqas – Sample Assessment Material