# Reverse Percentages (H)

◯ JustMaths

| Name: | @MrsHsNumeracy |
|---|---|
| Total Marks: | |

1. In a shop, all normal prices are reduced by 20% to give the sale price.

   The sale price of a TV set is then reduced by 30%.

   Mary says,

   *"30 + 20 = 50, so this means that the normal price of the TV set has been reduced by 50%."*

   Is Mary right?

   You must give a reason for your answer.

   $\frac{4}{5} \frac{\cancel{80}}{\cancel{100}} \times \frac{\cancel{70}^{7}}{\cancel{100}} = \frac{28}{50} = \frac{56}{100}$

   $100\% - 20\% = 80\%$

   $100\% - 30\% = 70\%$

   $100 - \overset{10}{\cancel{56}} = 44\%$

   No, the prices have been reduced by 44% [2]

2. Katy goes to work by train.

   The cost of her weekly train ticket increases by 12.5% to £225

   Work out the cost of her weekly train ticket before this increase.

   £225 ÷ 1·125

   = £200

   £......200...... [2]

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.

   $\frac{1}{5} = 20\%$

   £29·40 ÷ 0·8 = £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.

$$100 - 14 = 86$$

$$101325 \times 0.86^4$$

$$= 55425.6$$

**55000** Pascals [4]

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

What volume of water freezes to make 1962 cm³ of ice?

$$1962 \div 1.09$$

$$= 1800$$

..............**1800**..... cm³ [3]

6. Ellie bought a scarf and a dress.
   The scarf cost £4
   She sold both items for a total of £26
   She made
      100% profit on the cost of the scarf
      30% profit on the total cost.

Work out her percentage profit on the cost of the dress.

100% increase on £4 = £4 + £4 = £8

£26 − £8 = £18 (price dress sold for)

£26 ÷ 1.3 = £20 (total purchase price)

£20 − £4 = £16 (purchase price of dress)

% profit (dress) = $\frac{(18-16) \times 100}{16}$ = 12.5%

[5]

# CREDITS AND NOTES

| Question | Awarding Body |
|----------|---------------|
| 1 | Pearson Edexcel |
| 2 | Pearson Edexcel |
| 3 | AQA |
| 4 | AQA |
| 5 | OCR |
| 6 | AQA |

## 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 1

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