PERCENTAGES (FOUNDATION)

DATE OF SOLUTIONS: 15/05/2018 MAXIMUM MARK: 80

SOLUTIONS

Percentages (Standard) [7 Marks]

GCSE (+ IGCSE) EXAM QUESTION PRACTICE

1. [New Question, by Maths4Everyone.com]

Students in Year 11 took a maths test. The maximum mark in the test was 75.

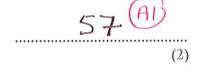
(a) Melissa scored 48 marks. Express 48 as a percentage of 75

48 * 100 mi

64% (1) (2)

(b) Ciaran scored 76%. Work out 76% of 75 marks.

75×0,76 (m)



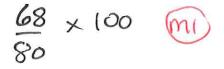
(c) 56% of the students who took the test were girls. There were 126 girls that took the test. Work out the total number of students that took the test.

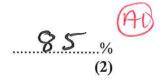
$$O.56 \times S = 126$$

 $\Rightarrow S = 126$ (m) (FOR DIVIDE)
 $O.56$ (WING 0.56) (225)
(USING 0.56) (3)

Paul got 68 out of 80 in a science test.

(a) Work out 68 out of 80 as a percentage.





Paul got 72 marks in a maths test. 72 is 60% of the total number of marks.

(b) Work out the total number of marks.

0.6 = 72 $\Rightarrow 2C = \frac{72}{0.6}$

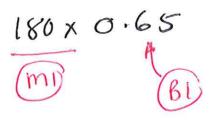
120	A
	(2)

Jade has tax deducted from her income at the rate of 24%. \bigcirc 76 Last month, after tax had been deducted, \$1786 of her income remained. Calculate her income last month before the tax was deducted.

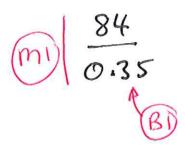
(RENEDSE PERCENTAGE SO DIVIDE) $\frac{1786}{0.76} = $2350 \ 1000$ DIVIDE

In a sale, normal prices were reduced by 35%.

(a) The normal price of a camera was £180 Work out the sale price of the camera.

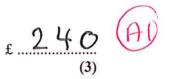


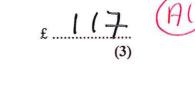
(b) The normal price of a clock was reduced by £84 Work out the normal price of the clock.



(c) The sale price of a computer was £442 Work out the normal price of the computer.

£ 680 (3)







Ella invested \$8000 for 3 years at 5% per annum compound interest.

Calculate the value of her investment at the end of 3 years.

8000 × 1.053 (m(

\$ 92

In a sale, normal prices are reduced by 8% (a) The normal price of a jacket is £28 Work out the price of the jacket in the sale. $28 \times 0.92 \leftarrow B1$ (m) [multiply] $\underbrace{25.76}_{(3)}$ (b) In the sale, the price of a shirt[decreases by £3] & £3 is the 87. December! Work out the normal price of the shirt. Work out the normal price of the shirt. $\underbrace{3}_{0.08}$ $\underbrace{3}_{0.08}$ $\underbrace{3}_{0.08}$ (a) E = 37.50 (b) E = 37.50 (c) E = 37.50
(c) E = 37.50 (c) E = 37.50 (c) E = 37.50 (c) E = 37.50
(c) E = 37.50 (c) E In July 2002, the population of Egypt was 69 million. By July 2003, the population of Egypt had increased by 2%. \implies $|\circ O Z$ $(\circ 2\%)$

Work out the population of Egypt in July 2003.

69 × 1.02 (Bi) 1.02' 70.38

8. [Edexcel, 2015]

Lisa sees a dress in a sale. The normal price of the dress is \$45 The price of the dress is reduced by 12% in the sale.

7 0-88,0-12

(a) Work out the price of the dress in the sale.

45×0.88 BI



Lisa's weekly pay increases from \$525 to \$546

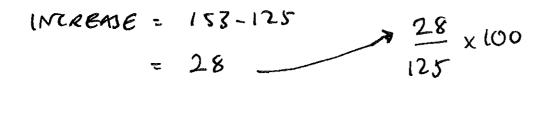
(b) Calculate her percentage pay increase.

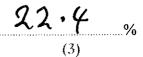
$$546 - 525 = 21 \text{ (mf)}$$

$$\frac{21}{525} \times 100 = 4 \text{ (Af)}$$

Eloy's height was 125 cm when his age was 7 years. His height was 153 cm when his age was 12 years.

(a) Work out the percentage increase in Eloy's height between the ages of 7 and 12 years.





Eloy's height at the age of 12 years was 85% of his height at the age of 20 years.

(b) Work out Eloy's height when his age was 20 years.

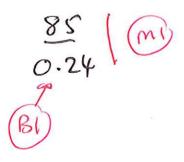
$$0.85 \times FINAL = 153$$

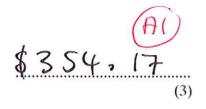
 $FINAL = \frac{153}{0.85}$
 $= 180 \text{ cm}$

(0.24, 0.76)

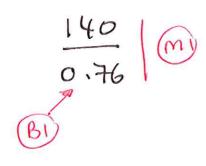
An electronics store had a sale in which it reduced all its prices by 24%.

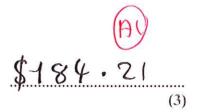
(a) Tom bought a television which had been reduced by \$85 Work out how much Tom paid for the television.



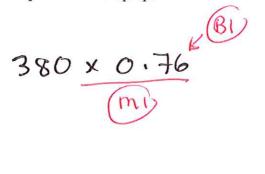


(b) Michael paid \$140 for a DAB radio.Work out the original price of the radio, before the sale.





(c) Alec bought a laptop, which was originally priced at \$380 Work out the sale price for the laptop.





Maddie invested \$3000 for 4 years at 2.5% per annum compound interest.

(a) Calculate the amount of the investment at the end of 4 years.

$$3000 \times 1.025^{4} = 3311.4386...$$

BI
s 3311.44
s 3311.44

(b) Work out the amount of interest that Maddie earned in these 4 years.

$$3311.44 - 3000$$

$$s = 311.44$$
(2)

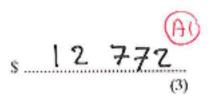
Pardcep invests a sum of money at an interest rate of 3% per year. At the end of one year, the interest he receives is \$372

(c) Work out the value of Pardeep's investment at the end of one year.

$$0.03 \times \text{START} = 372$$

,; START = 372
 0.03 m
 2.003 m
 2.12400 m

FINAL AMOUNT = 12400 + 372



Cara's salary was increased from \$28250 to \$29832

(a) Work out the percentage increase in Cara's salary.

$$[NCREASE = 29832 - 28250]$$

$$= 1582$$

$$= 1582$$

$$\frac{1}{582} \times (00)$$

$$= 28250$$

$$\frac{56}{\%}$$

$$\frac{1}{3}$$
Pedro's salary was increased by 5.2%.
After the increase, his salary was \$28141

(b) Work out his salary before the increase.

INCREASE OF 5-2°6 -> × 1:052 OR-1:052 mb 28141 1.052 26750 s 26750

Jomo invested an amount of money at 4% per annum compound interest. At the end of 2 years, the value of his investment was £3380

How much of the £3380 was interest?

INITIAL INVESTMENT =
$$3380$$

 $1 \cdot 04^{2}$ (M)
= 3125 (A)
INTEREST EARNT = $3380 - 3125$ (M)
= 255 (A)

The population of India increased by 20% between 1989 and 1999. $\rightarrow \times 1.20$ The population of India increased by a further 17% between 1999 and 2009. $\rightarrow \times 1.17$

Calculate the percentage by which the population of India increased between 1989 and 2009.

ge by which the pop 1.20×1.17 (m) 1.17 (m) 1.17 (m) = 1.404(B) enther = 40.4% (F)

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The methods used in these solutions, where relevant, are methods which have been successfully used with students. The method shown for a particular question is not always the only method and there is no claim that the method that is used is necessarily the most efficient or 'best' method. From time to time, a solution to a question might be updated to show a different method if it is judged that it is a good idea to do so.

Sometimes a method used in these solutions might be unfamiliar to You. If You are able to use a different method to obtain the correct answer then You should consider to keep using your existing method and not change to the method that is used here. However, the choice of method is always up to You and it is often useful if You know more than one method to solve a particular type of problem.

Within these solutions there is an indication of where marks <u>might</u> be awarded for each question. B marks, M marks and A marks have been used in a similar, but <u>not identical</u>, way that an exam board uses these marks within their mark schemes. This slight difference in the use of these marking symbols has been done for simplicity and convenience. Sometimes B marks, M marks and A marks have been interchanged, when compared to an examiners' mark scheme and sometimes the marks have been awarded for different aspects of a solution when compared to an examiners' mark scheme.

B1 - This is an unconditional accuracy mark (the specific number, word or phrase must be seen. This type of mark cannot be given as a result of 'follow through').

M1 - This is a method mark. Method marks have been shown in places where they might be awarded for the method that is shown. If You use a different method to get a correct answer, then the same number of method marks would be awarded but it is not practical to show all possible methods, and the way in which marks might be awarded for their use, within these particular solutions. When appropriate, You should seek clarity and download the relevant examiner mark scheme from the exam board's web site.

A1 - These are accuracy marks. Accuracy marks are typically awarded after method marks. If the correct answer is obtained, then You should normally (but not always) expect to be awarded all of the method marks (provided that You have shown a method) and all of the accuracy marks.

Note that some questions contain the words 'show that', 'show your working out', or similar. These questions require working out to be shown. Failure to show sufficient working out is likely to result in no marks being awarded, even if the final answer is correct.

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