Schoolworkout Maths

GCSE Percentages and Calculations: Assessment A and B

Your Name:	**Tutor Group:**
End of GCSE target grade:	**Grade achieved:**

Grade D objectives	☺	☺	☹
• I can write one number as a percentage of another.			
• I can convert between fractions, decimals and percentages.			
• I can increase or decrease a number by a percentage.			
• I can round a number to a given number of decimal places or significant figures.			
• I can calculate speed and density.			

1. 1450 people live in a village.
    330 of these people are children.
    What percentage of the people living in the village are children?
    Give your answer correct to **one decimal place**.

    …………………………% [2]

2. Write $\frac{12}{25}$ as a percentage and as a decimal.

    Percentage = ……………..%

    Decimal = ………..……… [2]

3. A loaf of bread costs 75p.
    The cost of the bread goes up by 12%.
    Work out the new cost of the loaf of bread.

    ……………………p [3]

4. A block of steel weighs 6596g
    The volume of the block is 840 cm^3.
    Calculate the density of steel.
    Give your answer correct to **3 significant figures**.

    …………………..g/cm^3 [3]

Grade C objectives	☺	😐	☹
• I can calculate a percentage increase or decrease.			
• I can find percentage profit and percentage loss.			
• I can use a calculator efficiently to find the answer to calculations.			
• I can find the upper and lower bound for a value given correct to the nearest whole unit.			
• I can solve more complex problems involving speed and density.			

5. A house was for sale for £235000.
    The price of the house has been reduced to £209000.
    Calculate the percentage reduction in the price of the house.
    Give your answer correct to 3 significant figures.

    ………………………..%   [3]

6. Paul buys a pack of 20 notebooks for £7.50.
    He sells then for 45p each.
    He sells all the notebooks.
    Work out the percentage profit.

    …………………..%
    [3]

7. [DO NOT USE A CALCULATOR FOR THIS QUESTION]
    A train is travelling at 72 miles per hour.
    It travels at this speed for 25 minutes.
    Work out how far the train will travel in this time.

    ……………………………miles   [3]

8. a) Use a calculator to work out the answer to this calculation:

$$\sqrt{\left(\frac{1400 - 78.2 \times 14.2}{1.45 \times 5.284}\right)}$$

Write down every number on your calculator screen.

………………………………………… [2]

b) Round your answer to 3 significant figures.

……………………. [1]

Grade B objectives	☺	☺	☹
• I can solve problems involving several percentage changes.			
• I can solve reverse percentage problems			
• I can work with compound interest.			
• I can find the lower and upper bounds for a number given to a given number of decimal places or significant figures.			

9. An electrical store sells a television for £450.
    The store increases the price of the television by 12%.
    The following month the electrical store has a sale and reduces the price of the television by 20%.
    Work out the sale price of the television.

£……………………. [3]

10. A holiday company is charging 15% more for the price of a holiday this year compared to last year.
This year a holiday to Spain costs £621.
Work out the cost of the same holiday last year.

£……………………….. [3]

11. £2000 is invested for 4 years at 3.5% per annum compound interest.
Work out the **total interest** earned over the 4 years.

£……………………….. [3]

12. Simone runs a race in 12.06 seconds to the nearest 0.01 second.
Write down the upper and lower bounds for the time that she ran the race,

Lower bound = ……………secs

Upper bound = ……………secs [2]

Grade A/A* objectives	☺	😐	☹
• I can solve more complex problems involving compound interest.			
• I can use a calculator to evaluate more complex calculations.			
• I can use upper and lower bounds in calculations.			

13. Naomi invests £15000 in a bank account that pays compound interest.
After 3 years there is £17865.24 in the account.
She does not put any additional money in or take money out of the account during this 3 year period.
What is the annual rate of interest?

…………………….% [3]

14. A cone has a volume of 1100 cm^3 correct to two significant figures.
    The height of the cone is 9.4 cm correct to two significant figures.
    Find the **lower bound** for the radius of the cone.
    Give your answer correct to 4 significant figures.

    [Note: The formula for the volume of a cone is $V = \frac{1}{3}\pi r^2 h$]

    ………………………….cm [4]

<table>
<tr><td>Teacher feedback:</td></tr>
<tr><td>In order to get to the next grade (or in order to improve the quality of your work) you should…</td></tr>
<tr><td>The following aspect of your work was particularly good …</td></tr>
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