



Calculator allowed

1. There are 200 students in Year 10. 110 are boys. There are 250 students in Year 11 140 are boys. Which year has the greater proportion of **boys**? You **must** show your working.

$$\frac{110}{200} \times 100 = 55\%$$

$$\frac{140}{250} \times 100 = 56\%$$

Answer Year 11

(Total 3 marks)

2. (a) In year 1, the value of a watch increases by 12%. In year 2, the value increases by the same **amount of money** as in year 1. The owner wants to work out the value of the watch at the end of year 2. Which multiplier can be used with the original value to work this out? Circle your answer.

1.12

1.24

1.12²

1.24²

(1)

- (b) In year 1, the value of a car decreases by 12%. In year 2, the value decreases by 12% of the value at the end of year 1. The owner wants to work out the value of the car at the end of year 2. Which multiplier can be used with the original value to work this out? Circle your answer.

0.76

0.88

0.76²

0.88²

(1)

(Total 2 marks)

3. Loren puts £600 in a bank account. The account pays 3% compound interest each year. After **one** year she withdraws £200. How much will she have in the account after **two** years?

$$(600 \times 1.03 - 200) \times 1.03 = £430.54$$

Answer £ 430.54

(Total 3 marks)

4. I increase a number by 24%. The answer is 6014. What number did I start with?

$$\text{Number} \times 1.24 = 6014$$

$$6014 \div 1.24 = 4850$$

Answer 4850

(Total 3 marks)

5. An amount of money was invested for 8 years. It earned **compound** interest at 2.5% per year. After 8 years the total value of the investment was £11 696.67

- (a) Tom is trying to work out the total interest earned.

$$\text{Interest for 8 years} = £11696.67 \times 0.025 \times 8$$

State what is wrong with Tom's method.

Dividing by 1.025^8 would have given the original amount.

(1)

- (b) Work out the total interest earned.

$$11696.67 - (11696.67 \div 1.025^8)$$

$$= 11696.67 - 9600$$

$$= 2076.67$$

Answer £ 2076.67

(3)

(Total 4 marks)

6. Which of these when converted to decimals are recurring decimals? Circle your answers.

$$\left(\frac{1}{3}\right)$$

π

$\sqrt{3}$

$\frac{3}{16}$

$$\left(\frac{5}{7}\right)$$

(Total 2 marks)

7. (a) Show that $\frac{4}{9}$ is equivalent to $0.\dot{4}$

$$0.4444\dots = 0.\dot{4}$$
$$9 \overline{) 4.0000}$$

(1)

(b) Using part (a), or otherwise, write 0.94 as a fraction.

$$\frac{9}{10} + \frac{4}{90} = \frac{81}{90} + \frac{4}{90} = \frac{85}{90} = \frac{17}{18}$$

Answer $\frac{17}{18}$

(2)

(Total 3 marks)

(Total for test = 20 marks)