

More Repeated Percentage Change

(a) Aisha earns £13.50 per hour. Her hourly rate is increased by 4%. She is then given an additional pay increase of 2.5%. What is her hourly rate after these increases?

(a) £14.39

(b) In 2019, the population of Toytown was 2250. In 2020 it increased by 1.6% and in 2021 it increased by 2.1%. What was the population of Toytown at the beginning of 2022?

(b) 2334

(c) A new motorbike costs £11650. Its value depreciates by 12% in each of the first two years after it is bought, and 8.5% in the third year. How much is the motorbike worth after three years?

(c) £8254.91

(d) An antique vase is valued at £885. Over three years, its value increases by 3.6% per year. It then gets damaged and its value decreases by 15%. How much is the vase now worth?

(d) £836.45

(e) An increase of 25% followed by an increase of 10% is equivalent to what overall percentage change?

(e) 37.5% increase

(f) An increase of 25% followed by a decrease of 10% is equivalent to what overall percentage change?

(f) 12.5% increase

(g) An increase of 25% followed by a decrease of 25% is equivalent to what overall percentage change?

(g) 6.25% decrease

(h) Giorgio invests £3900 at a compound interest rate of 2.5% for the first year, and $x\%$ for each of the second and third years. At the end of the three years Giorgio has earned £357.43 in interest. Find the value of x .

(h) $x = 3.2$

(i) A flask contains 5×10^{12} bacteria. The number of bacteria increases by a quarter every minute. After x minutes there are approximately 3.47×10^{14} bacteria in the flask. Find the value of x .

(i) $x = 19$