Max’s Market Expedition: Advanced Financial Reasoning

Learning objective: To apply multi-step arithmetic, percentage reasoning, and algebraic thinking to complex financial scenarios.

Max the monkey is helping his friends manage the local community market. Read each scenario carefully. Show your working out clearly, as full marks are awarded for logical, multi-step explanations rather than just the final numerical answer.

Max is managing the 'Community Harvest' stall. He has a total budget of £500.00 for the week. He purchases 40 crates of apples at £4.50 each and 25 crates of pears at £6.20 each. He intends to sell the apples at a 40% markup and the pears at a 30% markup. However, Max must account for a 15% wastage rate on all stock due to bruising. He also needs to pay a daily stall fee of £12.50 for the 6 days the market is open.

1. Calculate the total cost of purchasing the stock and the total cost of the stall fees for the week. What is Max’s total expenditure? (2 marks)

2. If 15% of the apples and 15% of the pears are wasted (rounded to the nearest whole crate), how many crates of each fruit does Max actually have left to sell? (2 marks)

3. Calculate the selling price per crate for apples and pears after applying the specified markups. Show your calculation for each. (3 marks)

4. If Max sells all his remaining non-wasted stock, what will his total revenue be? (3 marks)

5. Subtract the total expenditure (from Question 1) from the total revenue (from Question 4). What is Max’s final net profit? (2 marks)

6. Max decides to donate 10% of his net profit to the 'Bee Sanctuary Fund'. How much money does he donate, and how much does he keep for himself? (2 marks)

7. Reasoning: If Max wanted to increase his net profit by exactly £100.00 without changing his purchase price or wastage, by what percentage would he need to increase his selling price for both fruits? Explain your reasoning. (4 marks)

Draw: Sketch a bar graph on the back of your paper comparing the original cost of the fruit to the final revenue generated, clearly labelling your axes.

Extension challenge: Max discovers he can buy a bulk discount of 20% on the pears if he orders over 50 crates. Calculate whether it is more profitable for him to stick to his current plan or to order 50 crates of pears (even if he has to sell the surplus at a 10% discount). Write a short justification for your choice.