

Max's Market Stall Algebra

Learning objective: To use simple formulae expressed in words and to find missing numbers in equations using a balance method.

Read the story about Max the monkey's fruit stall. Use your knowledge of algebra to solve the puzzles. Remember, if both sides of the equation must be equal, whatever you do to one side, you must do to the other!

Max the monkey has opened a fruit stall in the forest. He loves using maths to keep his stall organised. Max says, 'If you want to know how much a bag of fruit costs, you have to look for the missing number!' Max uses a special rule for his fruit bags: The cost of a bag of apples is always the price of one apple multiplied by the number of apples in the bag. He writes this as a formula: $\text{Cost} = \text{£}0.20 \times \text{number of apples}$. One morning, Max had a bag of apples that cost $\text{£}1.40$. He needed to find out how many apples were inside. He thought: 'If $\text{£}1.40 = \text{£}0.20 \times A$, then I need to divide $\text{£}1.40$ by $\text{£}0.20$ to find A.' He worked it out and found there were 7 apples in the bag! Later, Max sold some bunches of bananas. He told his friend, 'If you buy 3 bunches of bananas and a basket that costs $\text{£}2.00$, the total price is $\text{£}11.00$.' He wrote the equation: $(3 \times B) + \text{£}2.00 = \text{£}11.00$. Max removed the $\text{£}2.00$ basket from both sides to see that 3 bunches of bananas cost $\text{£}9.00$. By dividing by 3, he worked out that one bunch of bananas costs $\text{£}3.00$.

Word bank: Equation · Variable · Balance · Formula · Missing number

1. Using Max's apple formula ($\text{Cost} = \text{£}0.20 \times \text{number of apples}$), how much would a bag containing 9 apples cost? (2 marks)

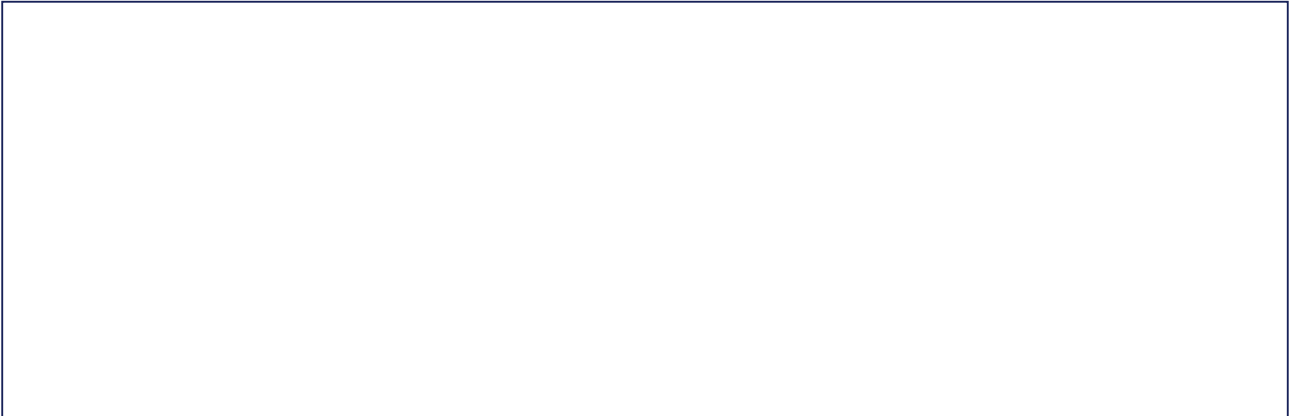
2. If Max has a bag of apples that costs $\text{£}2.20$, how many apples are in the bag? Show your working. (2 marks)

3. Max sells a bag of pears. The formula is: $(4 \times P) + \text{£}1.00 = \text{£}9.00$. What is the price of one pear (P)? Explain the steps you took to solve this. (3 marks)

4. Why does Max need to keep both sides of his equation 'balanced' when he is solving for a missing price? (2 marks)

5. If Max changes his formula to: $\text{Cost} = (\text{£}0.50 \times \text{number of oranges}) + \text{£}0.30$ for the bag, how much would 6 oranges cost in total? (2 marks)

Draw: Draw a set of balance scales. On one side, draw 3 bunches of bananas and a £2.00 weight. On the other side, draw a weight that says £11.00 to show how Max keeps his maths equations balanced.



Extension challenge: Create your own algebraic formula for a 'Fruit Salad' pack. Decide how much the container costs and how much each piece of fruit costs. Write the equation and ask a partner to solve for the total price if the pack has 5 pieces of fruit.