

Max's Magnificent Square Numbers

Learning objective: To recognize and use square numbers and the notation for squared (2), and identify square numbers up to 12×12 .

Help Max the monkey solve these square number puzzles. Remember, a square number is the product of a number multiplied by itself. For example, $3 \times 3 = 9$, so 9 is a square number.

Max is organising his collection of monkey nuts. He likes to arrange them into perfect squares because he says it makes his math puzzles much easier to solve!

Word bank: Square number · Product · Squared · Multiply · Array · Integer

1. Max has a grid of nuts that is 4 rows by 4 columns. Write the calculation for this square number and find the total. (2 marks)

2. Calculate the value of the following: a) $5^2 = ?$ b) $8^2 = ?$ c) $10^2 = ?$ (3 marks)

3. Max says that 20 is a square number because $2 \times 10 = 20$. Is Max correct? Explain your reasoning using the definition of a square number. (2 marks)

4. If a square tile costs £1, how much would it cost to build a square floor that is 7 tiles long and 7 tiles wide? (2 marks)

5. Find the missing number: $?^2 = 121$. (1 mark)

Draw: Draw a 6x6 grid of dots to represent the square number 36. Color in the dots to show the square pattern.



Extension challenge: Max has 100 monkey nuts. Can he make a single, larger square using all of them? If so, what are the dimensions of the square (length and width)?