

Max's Geometry Garden: Mastering Angles

Learning objective: To calculate missing angles around a point, on a straight line, and within triangles and quadrilaterals.

Help Max the monkey solve these geometry puzzles by using your knowledge of angle properties. Remember: angles on a straight line total 180° , angles around a point total 360° , and angles in a triangle total 180° .

Max is designing a beautiful geometric garden. He has carefully measured the paths and flowerbeds to ensure everything fits perfectly. He knows that a full turn is 360° , but he needs your help to find the missing measurements for his new planting scheme. Max always checks his work to ensure every corner is precise and every degree is accounted for.

Word bank: acute · obtuse · reflex · protractor · degrees · straight line · sum · vertically opposite

1. Max has a triangular flowerbed. Two of the angles measure 45° and 65° . Calculate the size of the third angle. Show your working out. (2 marks)

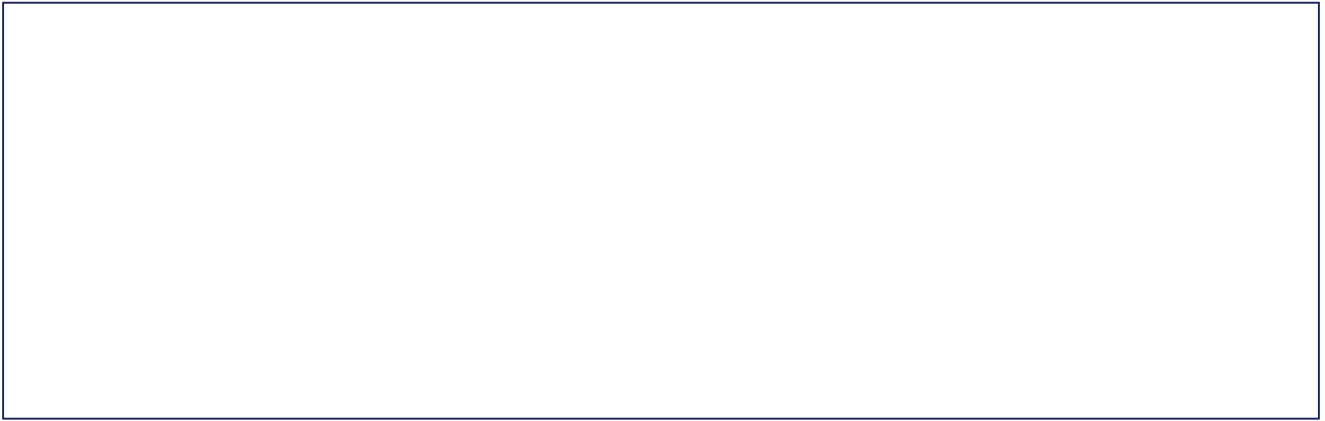
2. A straight path is intersected by a diagonal fence. If one angle on the straight line is 125° , what is the size of the adjacent angle? (2 marks)

3. At the centre of the garden, four paths meet at a single point. Three of the angles are 80° , 90° , and 100° . What is the size of the fourth angle? (2 marks)

4. Explain why a triangle cannot have two obtuse angles. (2 marks)

5. Max finds a quadrilateral-shaped patio. Three of the angles are 110° , 70° , and 80° . What is the fourth angle? (2 marks)

Draw: Draw a regular hexagon and use a ruler to divide it into triangles, then label the interior angles.



Extension challenge: Max wants to create a regular octagon for his vegetable patch. Research or calculate the size of each interior angle of a regular octagon and explain your method.