Practice worksheet | Angles and polygons

Shape-sorting rules and simple algorithms

Name: _____ Date: _____

6 questions | 14 marks

1. Use the sorting table for a four-sided shape with four right angles but not four equal sides. State the output. [2 marks]

An ordered algorithm for four-sided shapes. Stop at the first output.

Step	Condition	Output or next step
1	Not exactly four sides	Not a quadrilateral; stop
2	Four right angles AND four equal sides	Square; stop
3	Four right angles	Rectangle; stop
4	Four equal sides	Rhombus; stop
5	None of the earlier conditions	Other quadrilateral; stop

2. Use the sorting table for a four-sided shape with four equal sides but no right angles. State the output. [2 marks]

An ordered algorithm for four-sided shapes. Stop at the first output.

Step	Condition	Output or next step
1	Not exactly four sides	Not a quadrilateral; stop
2	Four right angles AND four equal sides	Square; stop
3	Four right angles	Rectangle; stop
4	Four equal sides	Rhombus; stop
5	None of the earlier conditions	Other quadrilateral; stop

3. The rule “If a shape has four equal sides, output Square” is incorrect. Give a counterexample and repair the condition. [3 marks]

4. A five-sided polygon is given to the table. At which step does it stop, and what is the output? [2 marks]

An ordered algorithm for four-sided shapes. Stop at the first output.

Step	Condition	Output or next step
1	Not exactly four sides	Not a quadrilateral; stop
2	Four right angles AND four equal sides	Square; stop
3	Four right angles	Rectangle; stop
4	Four equal sides	Rhombus; stop
5	None of the earlier conditions	Other quadrilateral; stop

5. Write an ordered side-based algorithm that gives the most specific name Equilateral, Isosceles or Scalene for a triangle. [3 marks]

6. A four-sided shape has no right angles and not all sides equal. The table outputs Other quadrilateral. Does this prove it has no parallel sides? Explain. [2 marks]