

GRADE 5 MATHEMATICS

GEOMETRY

Complete Worksheet Pack

- Angles & lines
- Triangles & quadrilaterals
- 2D shape properties
- 3D shapes & nets
- Coordinates & transformations

6 practice worksheets + separate answer keys

- Geometry challenges

Worksheet 1 • Angles & Lines

Identify, classify and calculate with angles.

A. Angle types

1. Classify an angle of 35° .

2. Classify an angle of 90° .

3. Classify an angle of 125° .

4. Classify an angle of 180° .

5. Which type of angle is greater than 90° but less than 180° ?

B. Find the missing angle

6. Two angles form a right angle. One is 35° . Find the other.

7. Two angles form a straight line. One is 68° . Find the other.

8. Three angles around a point are 90° , 120° and x° . Find x .

9. Angles on a straight line are 45° , 70° and x° . Find x .

C. Lines & reasoning

10. What is the difference between parallel and perpendicular lines?

11. Give one real-life example of parallel lines.

12. Can two perpendicular lines also be parallel? Explain.

Worksheet 1 • Angles & Lines

Answer Key

A

1. Acute. 2. Right. 3. Obtuse. 4. Straight. 5. Obtuse.

B

6. 55° . 7. 112° . 8. 150° . 9. 65° .

C

10. Parallel lines never meet; perpendicular lines meet at 90° . 11. Examples: railway tracks, opposite edges of a ruler. 12. No; perpendicular lines intersect, while parallel lines do not.

Worksheet 2 • Triangles & Quadrilaterals

Classify shapes by their properties and use angle facts.

A. Triangles

1. Classify a triangle with sides 5 cm, 5 cm and 5 cm.

2. Classify a triangle with sides 6 cm, 6 cm and 4 cm.

3. Classify a triangle with angles 90° , 40° and 50° .

4. Classify a triangle with angles 60° , 60° and 60° .

5. What is the sum of the interior angles of a triangle?

B. Quadrilaterals

6. Name the quadrilateral with four equal sides and four right angles.

7. Name a quadrilateral with exactly one pair of parallel sides.

8. How many degrees are in the interior angles of a quadrilateral altogether?

9. A quadrilateral has angles 90° , 80° , 110° and x° . Find x .

C. Reasoning

10. Can a triangle have two right angles? Explain.

11. A square is also a rectangle. Explain why.

12. Give one property shared by a square and a parallelogram.

Worksheet 2 • Triangles & Quadrilaterals

Answer Key

A

1. Equilateral. 2. Isosceles. 3. Right-angled. 4. Equilateral. 5. 180° .

B

6. Square. 7. Trapezium/trapezoid. 8. 360° . 9. 80° .

C

10. No; two right angles already total 180° , leaving no angle for the third vertex. 11. A square has four right angles and opposite sides parallel, satisfying rectangle properties. 12. Both have two pairs of parallel sides.

Worksheet 3 • Properties of 2D Shapes

Use sides, angles, symmetry and shape properties.

A. Complete the properties

1. A pentagon has ____ sides.

2. A hexagon has ____ sides.

3. An octagon has ____ sides.

4. A regular polygon has equal sides and equal ____.

5. A line of symmetry divides a shape into two matching ____.

B. Shape reasoning

6. How many lines of symmetry does a square have?

7. How many lines of symmetry does a rectangle have?

8. Does a general parallelogram always have a line of symmetry? Explain.

9. Which has more sides: a hexagon or an octagon?

C. Classify & compare

10. Give two properties of a rhombus.

11. Give two properties of a trapezium/trapezoid.

12. Explain one way a square and a rhombus are alike and one way they can differ.

Worksheet 3 • Properties of 2D Shapes

Answer Key

A

1. 5. 2. 6. 3. 8. 4. Angles. 5. Halves.

B

6. 4. 7. 2. 8. No, not generally. 9. Octagon.

C

10. Four equal sides; opposite angles equal. 11. At least one pair of parallel sides; four sides. 12. Both can have four equal sides; a square has four right angles, while a general rhombus need not.

Worksheet 4 • 3D Shapes, Nets & Coordinates

Explore solids, faces, edges, vertices and coordinate positions.

A. 3D shape properties

1. How many faces, edges and vertices does a cube have?

2. How many faces, edges and vertices does a cuboid have?

3. How many vertices does a triangular prism have?

4. Which 3D shape has one curved surface and one circular flat face?

B. Nets & views

5. What is a net of a 3D shape?

6. How many square faces are needed for a cube net?

7. Would six identical squares always form a valid cube net? Explain why arrangement matters.

8. Name one 3D shape whose net can include rectangles and two circles.

C. Coordinates

9. A point is at (3,5). What is its x-coordinate?

10. A point is at (7,2). What is its y-coordinate?

11. Starting at (2,3), move 4 units right and 2 units up. What are the new coordinates?

12. Which point is farther right: (6,4) or (3,8)? Explain.

Worksheet 4 • 3D Shapes, Nets & Coordinates

Answer Key

A

1. 6 faces, 12 edges, 8 vertices. 2. 6 faces, 12 edges, 8 vertices. 3. 6 vertices. 4. Cone.

B

5. A flat pattern that can be folded to make a 3D shape. 6. 6. 7. No; the squares must be arranged so the net folds into a closed cube. 8. Cylinder.

C

9. 3. 10. 2. 11. (6,5). 12. (6,4), because its x-coordinate is greater.

Worksheet 5 • Transformations & Geometric Reasoning

Work with reflection, translation, rotation and position.

A. Transformations

1. What transformation moves a shape without turning or flipping it?

2. What transformation flips a shape over a line?

3. What transformation turns a shape around a fixed point?

4. A shape is moved 5 squares right without changing its orientation. What transformation is this?

B. Describe the movement

5. A point (2,4) is translated 3 units right. Give its new coordinates.

6. A point (6,1) is translated 4 units up. Give its new coordinates.

7. A point (5,7) is reflected in a horizontal line at $y = 4$. Describe what happens to its vertical position.

8. A square is rotated 90° about its centre. Does its size change? Explain.

C. Reasoning

9. Which transformations preserve the size and shape of a figure?

10. Can a reflection change the orientation of a shape? Explain.

11. Give a real-life example of a rotation.

Worksheet 5 • Transformations & Geometric Reasoning

Answer Key

A

1. Translation. 2. Reflection. 3. Rotation. 4. Translation.

B

5. (5,4). 6. (6,5). 7. It moves the same distance to the other side of $y=4$, to $y=1$. 8. No; rotation does not change size.

C

9. Translation, reflection and rotation preserve size and shape. 10. Yes; a reflection reverses orientation. 11. Examples: a clock hand turning, a wheel rotating.

Worksheet 6 • Geometry Challenge

Combine angle, shape, coordinate and reasoning skills.

A. Challenge

1. A triangle has angles $2x^\circ$, $3x^\circ$ and $4x^\circ$. Find x and all three angles.

2. A quadrilateral has angles x° , $2x^\circ$, $3x^\circ$ and $4x^\circ$. Find x and the four angles.

3. A regular hexagon has 6 equal interior angles. What is the size of each interior angle?

4. A rectangle has length 14 cm and width 9 cm. Find its perimeter and area.

B. Coordinate & shape reasoning

5. Points A(2,2), B(8,2), C(8,6), D(2,6) are joined in order. What shape do they form? Give two properties.

6. A square has vertices (1,1), (5,1), (5,5), (1,5). What are its side length and area?

7. A point moves from (3,2) to (3,8). How many units did it move and in which direction?

C. Think like a mathematician

8. Can a quadrilateral have four equal sides but not be a square? Explain.

9. Explain why a triangle cannot have an interior angle greater than 180° .

10. Create a geometry problem whose answer is 45° and solve it.

Worksheet 6 • Geometry Challenge

Answer Key

A

1. $x=20$; angles 40° , 60° , 80° . 2. $x=36$; angles 36° , 72° , 108° , 144° . 3. 120° . 4. Perimeter 46 cm; area 126 cm^2 .

B

5. Rectangle; opposite sides equal and all angles are right angles. 6. Side length 4 units; area 16 square units. 7. 6 units upward.

C

8. Yes; a rhombus can have four equal sides without four right angles. 9. Triangle angles total 180° . 10. Answers vary; check that the geometry and calculation produce 45° .