GRADE 7

PERIMETER, AREA & COMPOSITE SHAPES

Complete Printable Worksheet Pack

6 Worksheets

Separate Answer Keys

Perimeter & Area

Composite Shapes

Scale & Applications

Reasoning Challenges

A4 printable • International Grade 7 level

Worksheet 1: Perimeter of 2D Shapes

Show your working. Use correct units and explain your reasoning where asked.

1. Find the perimeter of a rectangle measuring 14 cm by 8 cm.

2. A square has side length 11.5 cm. Find its perimeter.

3. A triangle has side lengths 7.5 cm, 9 cm and 12.5 cm. Find its perimeter.

4. A regular pentagon has each side 6.8 cm. Find its perimeter.

5. A rectangle has perimeter 54 cm and length 17 cm. Find its width.

6. A square has perimeter 46.4 cm. Find the side length.

7. A rectangular garden is 24 m long and 16.5 m wide. How much fencing is needed to go around it once?

8. A 36 cm wire is bent into a rectangle with length 11 cm. Find its width.

9. A shape has sides 8 cm, 6 cm, 5 cm, 9 cm and 12 cm. Find its perimeter.

10. Explain why two rectangles can have the same perimeter but different areas. Give an example.

Answer Key 1: Perimeter of 2D Shapes

Equivalent correct methods are acceptable.

1. 44 cm

2. 46 cm

3. 29 cm

4. 34 cm

5. 10 cm

6. 11.6 cm

7. 81 m

8. 7 cm

9. 40 cm

10. Example: 12 cm × 6 cm and 10 cm × 8 cm both have perimeter 36 cm, but their areas are 72 cm^2 and 80 cm^2.

Worksheet 2: Area of Rectangles, Squares & Triangles

Show your working. Use correct units and explain your reasoning where asked.

1. Find the area of a rectangle 18 cm by 7.5 cm.

2. Find the area of a square with side 13 cm.

3. Find the area of a triangle with base 16 cm and height 9 cm.

4. A parallelogram has base 12.5 cm and perpendicular height 8 cm. Find its area.

5. A rectangle has area 252 cm² and length 18 cm. Find its width.

6. A triangle has area 84 cm² and base 14 cm. Find its perpendicular height.

7. A square has area 324 cm². Find its side length and perimeter.

8. A triangular sign has base 2.4 m and height 1.5 m. Find its area.

9. A classroom floor is 9.6 m by 7.5 m. Find its area.

10. A rectangle and triangle have the same base of 20 cm and the same height of 12 cm. Compare their

areas.

Answer Key 2: Area of Rectangles, Squares & Triangles

Equivalent correct methods are acceptable.

1. 135 cm²

2. 169 cm²

3. 72 cm²

4. 100 cm²

5. 14 cm

6. 12 cm

7. Side 18 cm; perimeter 72 cm

8. 1.8 m²

9. 72 m²

10. Rectangle = 240 cm²; triangle = 120 cm². The rectangle has twice the area.

Worksheet 3: Missing Dimensions & Area/Perimeter Reasoning

Show your working. Use correct units and explain your reasoning where asked.

1. A rectangle has area 192 cm² and width 12 cm. Find its length and perimeter.

2. A rectangle has perimeter 70 m and length 22 m. Find its width and area.

3. A square and rectangle both have perimeter 48 cm. The square has side 12 cm. If the rectangle has length 16 cm, find its width and area.

4. A triangle has area 108 cm² and height 12 cm. Find its base.

5. A parallelogram has area 154 cm² and base 14 cm. Find its perpendicular height.

6. A rectangle is 4 cm longer than its width. Its area is 96 cm². Find its dimensions.

7. A rectangular poster has perimeter 100 cm. Its length is twice its width. Find both dimensions.

8. A garden has area 300 m². Its length is 5 m more than its width. Find the whole-number dimensions.

9. Can a rectangle with perimeter 40 cm have area 120 cm²? Explain.

10. Two rectangles have the same area of 96 cm². Give two different whole-number dimension pairs and compare their perimeters.

Answer Key 3: Missing Dimensions & Area/Perimeter Reasoning

Equivalent correct methods are acceptable.

1. Length 16 cm; perimeter 56 cm
2. Width 13 m; area 286 m^2
3. Width 8 cm; area 128 cm^2
4. Base 18 cm
5. Height 11 cm
6. 8 cm by 12 cm
7. Width = 16⅔ cm; length = 33⅓ cm.
8. Width = 15 m; length = 20 m.
9. Yes. Example 10 cm × 10 cm has perimeter 40 cm and area 100 cm^2, so not 120. Therefore no.
10. Example: 8×12 gives perimeter 40 cm; 6×16 gives perimeter 44 cm.

Worksheet 4: Composite Shapes & Real-Life Areas

Show your working. Use correct units and explain your reasoning where asked.

1. An L-shaped floor can be split into rectangles of 10 m × 4 m and 6 m × 3 m. Find its total area.

2. A large rectangle is 18 cm × 12 cm. A 6 cm × 5 cm rectangle is removed from one corner. Find the remaining area.

3. A 20 m × 14 m garden has a 5 m × 4 m flower bed and a 6 m × 3 m pond. Find the remaining area.

4. A T-shaped sign is made from a 14 cm × 4 cm rectangle and a 6 cm × 5 cm rectangle joined without overlap. Find its area.

5. A floor is 12 m × 9 m. A rectangular rug 4.5 m × 3 m covers part of it. Find the uncovered area.

6. A rectangular wall is 8 m × 3.5 m. A door 2 m × 0.9 m and a window 1.5 m × 1.2 m are not painted. Find the area to be painted.

7. A composite shape is formed by a 15 cm × 8 cm rectangle with a 7 cm × 5 cm rectangle attached along one full side. Find the total area.

8. A square courtyard has side 18 m. A 4 m × 7 m rectangular section is planted with grass. What area remains?

9. A 30 m × 20 m field has a 2 m-wide path running inside all four edges. Find the area of the path.

10. A 16 m × 10 m rectangle has a 6 m × 4 m rectangular section removed. The remaining shape is used as a floor. Find its area and give one possible perimeter if the removed section is cut from a corner.

Answer Key 4: Composite Shapes & Real-Life Areas

Equivalent correct methods are acceptable.

1. $40 + 18 = 58$ m²

2. $216 - 30 = 186$ cm²

3. $280 - 20 - 18 = 242$ m²

4. $56 + 30 = 86$ cm²

5. $108 - 13.5 = 94.5$ m²

6. $28 - 1.8 - 1.8 = 24.4$ m²

7. $120 + 35 = 155$ cm²

8. $324 - 28 = 296$ m²

9. Outer 600 m²; inner $26 \times 16 = 416$ m²; path = 184 m²

10. Area $= 160 - 24 = 136$ m²; if cut from a corner, perimeter = 52 m.

Worksheet 5: Scale, Units & Area Applications

Show your working. Use correct units and explain your reasoning where asked.

1. A map scale is 1 cm : 4 km. A rectangular park measures 3.5 cm by 2 cm on the map. Find its actual dimensions and area.

2. A floor plan uses 1 cm : 2 m. A room is drawn as 5 cm × 3.5 cm. Find its actual area.

3. A garden is 24.5 m by 16.2 m. Estimate its area by rounding to whole metres, then calculate the exact area.

4. A rectangular playground has an area of 1,200 m² and length 40 m. Find its width and perimeter.

5. A square field has area 625 m². A 2 m-wide path is built inside the field along all four edges. Find the area inside the path.

6. A triangular banner has base 3.6 m and height 2.2 m. Find its area in m² and cm².

7. A rectangular pool is 12.5 m by 8 m. Tiles cover the entire bottom. Each tile covers 0.25 m². How many tiles are needed?

8. A rectangular wall is 7.2 m by 3 m. Paint covers 6 m² per litre. How many litres are needed, ignoring doors and windows?

9. A square and a rectangle both have area 144 m². The square has side 12 m; the rectangle has dimensions 9 m × 16 m. Compare their perimeters.

10. A scale drawing shows a triangular garden with base 4 cm and height 3 cm. Scale is 1 cm : 5 m. Find the actual area.

Answer Key 5: Scale, Units & Area Applications

Equivalent correct methods are acceptable.

1. 14 km × 8 km = 112 km²

2. Actual 10 m × 7 m; area 70 m²

3. Estimate 25×16=400 m²; exact 24.5×16.2=396.9 m²

4. Width 30 m; perimeter 140 m

5. Inner side 21 m; area 441 m²

6. 3.96 m² = 39,600 cm²

7. Area 100 m²; 400 tiles

8. Area 21.6 m²; 3.6 L

9. Square perimeter 48 m; rectangle perimeter 50 m, so rectangle is 2 m greater

10. Actual base 20 m, height 15 m; area 150 m²

Worksheet 6: Perimeter, Area & Composite Shapes Challenge

Show your working. Use correct units and explain your reasoning where asked.

1. A rectangle has perimeter 84 cm. Its length is 3 cm more than twice its width. Find its dimensions and

area.

2. A 24 m × 18 m rectangle has two identical 6 m × 4 m corners removed. Find the remaining area.

3. A garden has perimeter 100 m and length 30 m. A rectangular pond 8 m × 5 m occupies part of it. Find

the garden's width, total area and remaining area.

4. A composite shape consists of a 12 cm × 9 cm rectangle with a semicircle of diameter 9 cm attached to

one 9 cm side. Find the total area using π = 3.14.

5. A square has side 20 m. A smaller square of side 8 m is removed from a corner. Find the remaining area

and the new perimeter.

6. A rectangular sheet is 32 cm × 20 cm. Four identical 4 cm × 3 cm rectangles are cut from the corners.

Find the remaining area.

7. A floor is 15 m × 12 m. A border of uniform width 1.5 m is built inside it. Find the area of the border.

8. Two rectangles have equal perimeter of 60 cm. One is 19 cm × 11 cm. The other has width 14 cm. Find

its length and compare their areas.

9. A rectangle is 25 m × 16 m. A triangular section with base 10 m and height 8 m is removed. What

percentage of the original area remains?

10. Design a rectangle with whole-number dimensions, perimeter 48 cm and area greater than 130 cm².

Give one possible design and explain why it works.

Answer Key 6: Perimeter, Area & Composite Shapes Challenge

Equivalent correct methods are acceptable.

1. Width 13 cm, length 29 cm; area 377 cm^2

2. $432 - 48 = 384$ m^2

3. Width 20 m; garden area 600 m^2; remaining area 560 m^2

4. Rectangle 108 cm^2; semicircle = $\frac{1}{2} \times 3.14 \times 4.5^2 = 31.7925$ cm^2; total ≈ 139.79 cm^2

5. Remaining area $400 - 64 = 336$ m^2; new perimeter remains 80 m because a corner cut replaces equal lengths

6. $640 - 4 \times 12 = 592$ cm^2

7. Outer 180 m^2; inner dimensions $12 \times 9 = 108$ m^2; border = 72 m^2

8. $2(L+14)=60 \rightarrow L=16$ cm; first area 209 cm^2, second 224 cm^2; second is 15 cm^2 greater

9. Original 400 m^2; triangle 40 m^2; remaining 360 m^2 = 90%

10. Example 14 cm × 10 cm: perimeter 48 cm and area 140 cm^2, which is greater than 130 cm^2.