CLASS 10 · MATHEMATICS · CHAPTER 6

Triangles - Exercise 6.1

Exercise 6.1 with independently verified solutions.

CHAPTER	RESOURCE	SOURCE
Triangles	NCERT Exercises	NCERT Mathematics, Reprint 2026-27

PART 1

Verified NCERT questions and solutions

Verified NCERT questions and solutions

Solutions are checked independently and follow the supplied NCERT chapter edition.

QUESTION

Question 1

similar figures · polygons

Fill in the blanks using the correct word given in brackets:

(i) All circles are _____. (congruent, similar)

(ii) All squares are _____. (similar, congruent)

(iii) All _____ triangles are similar. (isosceles, equilateral)

(iv) Two polygons of the same number of sides are similar if (a) their corresponding angles are _____ and (b) their corresponding sides are _____. (equal, proportional)

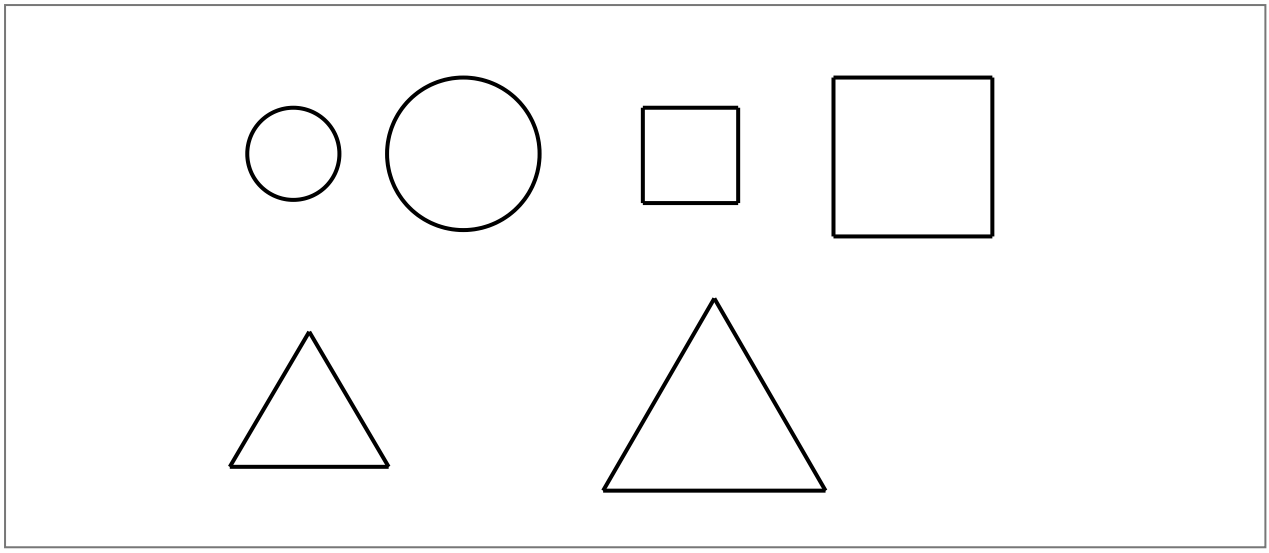
Solution

GIVEN:

The blanks ask for facts about circles, squares, equilateral triangles and similar polygons.

TO ANSWER:

Fill all four blanks and justify each choice.



Similar shapes — solution sketch (not to scale).

SOLUTION:

(i) All circles have the same shape, though their radii may differ. Therefore, all circles are similar.

(ii) All squares have four right angles and their corresponding sides are proportional. Therefore, all squares are similar.

(iii) All equilateral triangles have three 60° angles and proportional corresponding sides. Therefore, all equilateral triangles are similar.

(iv) By the definition of similar polygons, corresponding angles must be equal and corresponding sides must be proportional.

Final answer

(i) similar; (ii) similar; (iii) equilateral; (iv) (a) equal, (b) proportional.

QUESTION

Question 2

similar figures · non-similar figures

Give two different examples of pairs of (i) similar figures and (ii) non-similar figures.

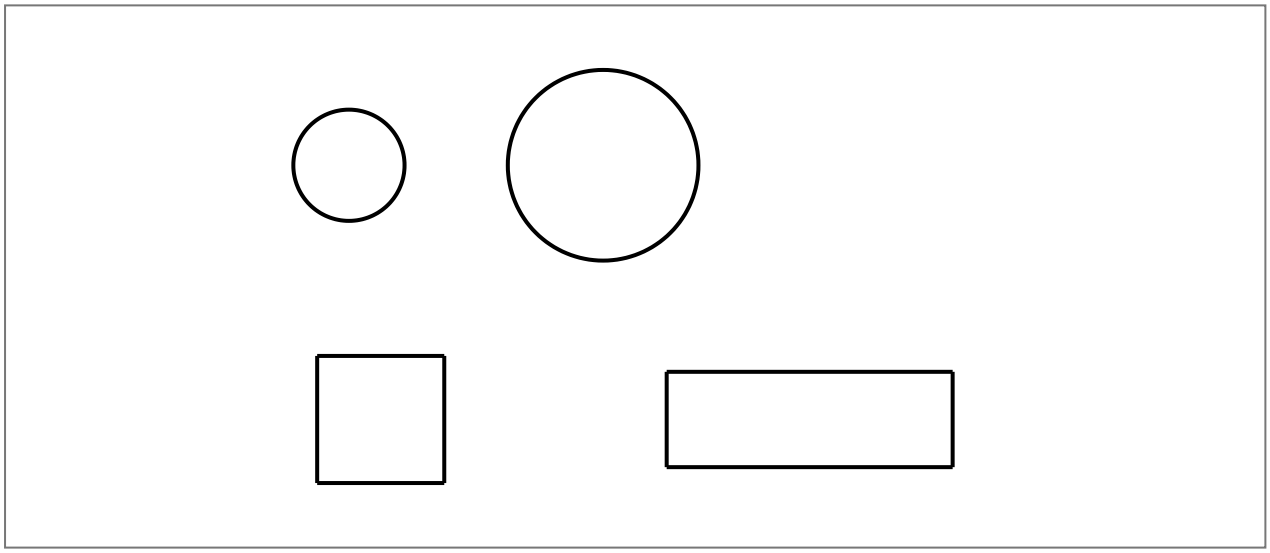
Solution

GIVEN:

We need two examples each of similar and non-similar figures.

TO ANSWER:

Name the pairs and explain why each belongs in its group.



Examples of similar and non-similar figures — solution sketch (not to scale).

SOLUTION:

(i) Any two circles are similar. Any two squares are also similar.

For circles, the shape is the same; for squares, all corresponding angles are equal and corresponding sides are proportional.

(ii) A circle and a square are not similar. A square and a non-square rectangle are not similar.

A circle and square have different shapes. For the square and non-square rectangle, corresponding side ratios are not all equal.

Final answer

(i) Two circles; two squares. (ii) A circle and a square; a square and a non-square rectangle.

QUESTION

Question 3

similar quadrilaterals · corresponding angles

State whether the quadrilaterals in Figure 6.8 are similar or not.

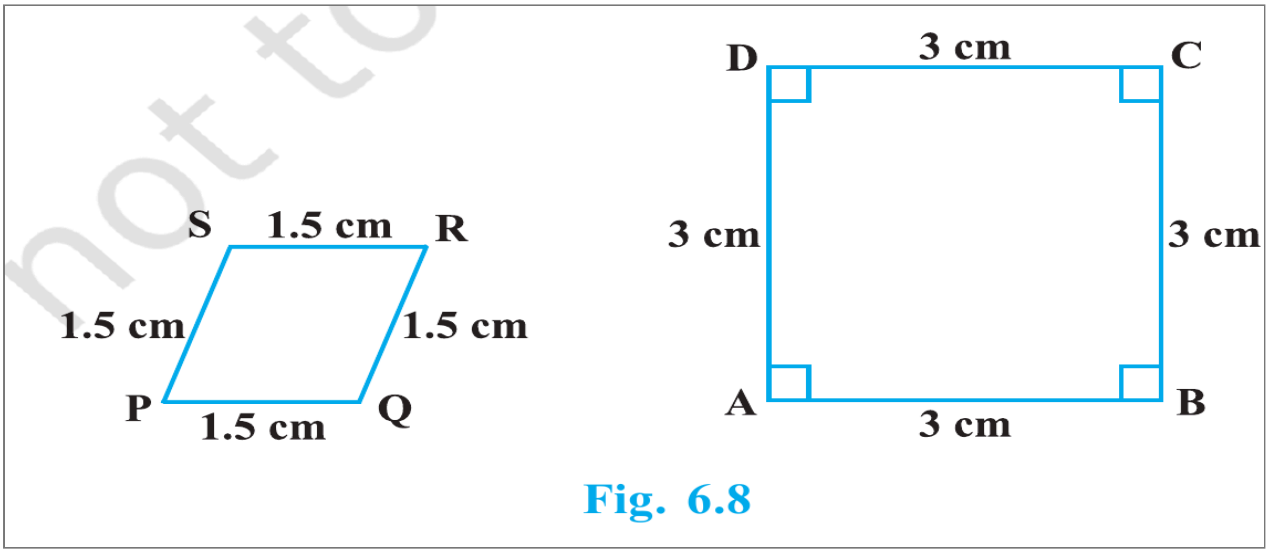


Figure 6-8 from the supplied NCERT chapter.

Solution

GIVEN:

PQRS has equal sides of 1.5 cm; ABCD is a square with sides of 3 cm.

TO ANSWER:

Decide whether the two quadrilaterals are similar.

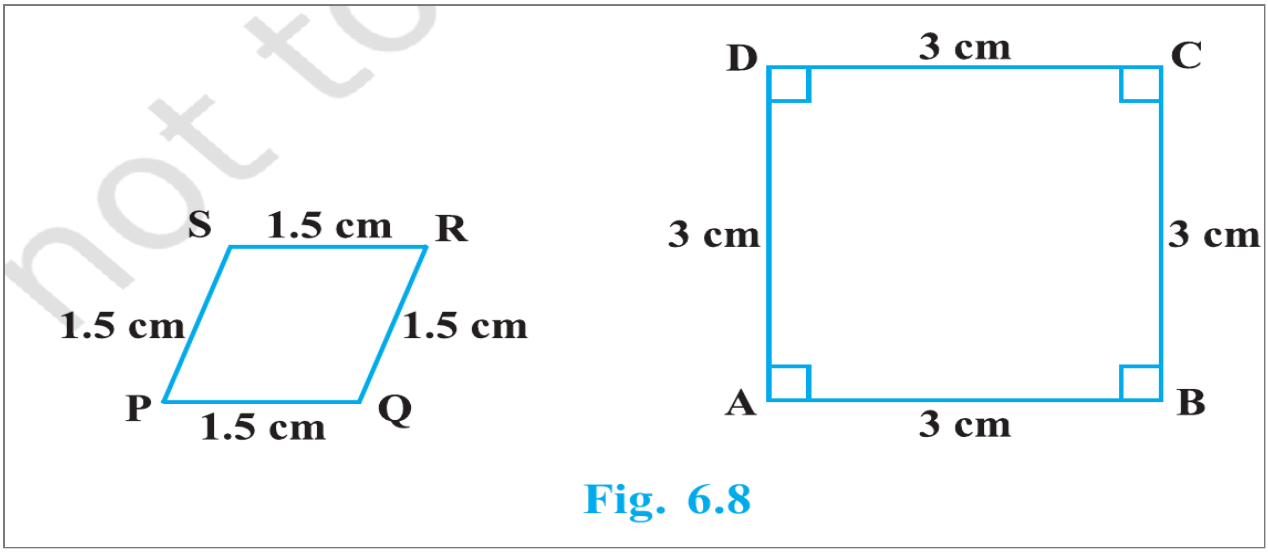


Figure 6-8 from the supplied NCERT chapter.

SOLUTION:

In PQRS, every side is 1.5 cm. In ABCD, every side is 3 cm.

Thus corresponding sides are proportional:

$$\frac{1.5}{3} = \frac{1}{2}$$

However, ABCD has four right angles, whereas the corresponding angles of PQRS are not all right angles.

For polygons to be similar, both corresponding angles must be equal and corresponding sides must be proportional.

Since the angle condition fails, the quadrilaterals are not similar.

Final answer

The quadrilaterals are not similar.