

CLASS 6

MATHS

EXTRA QUESTIONS

Class 6 Maths Chapter 8 Playing with Constructions Extra Questions

Extra practice questions for Class 6 Maths Chapter 8, "Playing with Constructions", to reinforce ruler-compass-protractor construction skills beyond the textbook's own exercises.

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Extra practice questions for **Class 6 Maths Chapter 8, “Playing with Constructions”**, to reinforce ruler-compass-protractor construction skills beyond the textbook’s own exercises.

Very Short Answer Questions

Q1. What three tools are mainly used in this chapter’s constructions?

Answer: A ruler, a compass, and a protractor.

Q2. Define a circle in terms of its centre and radius.

Answer: A circle is the set of all points in a plane at a fixed distance (the radius) from a fixed point (the centre).

Q3. What angle do all four corners of a rectangle measure?

Answer: 90° (a right angle) at every corner.

Q4. If a rectangle’s diagonal splits one corner’s angle into 35° and another value, what is that other value?

Answer: $90 - 35 = 55^\circ$ (the two parts of a right-angle corner split by the diagonal always add up to 90°).

Q5. What tool is used to construct a fixed-radius circle or to copy a length?

Answer: The compass.

Short Answer Questions

Q6. Describe, step by step, how to construct a rectangle of length 7 cm and breadth 3 cm.

Answer: (1) Draw base $AB = 7$ cm with a ruler. (2) Use a protractor to draw 90° angles at A and B. (3) Mark points P and Q on these perpendiculars, 3 cm from A and B respectively. (4) Join P and Q. (5) Verify: $PQ = AB = 7$ cm, $AP = BQ = 3$ cm, and all angles = 90° .

Q7. Can a rectangle measuring 5 cm $\times$ 15 cm be divided into identical squares? If so, how many, and what size?

Answer: Yes — since $15 = 3 \times 5$, it can be divided into **3 identical squares of side 5 cm** each.

Q8. A rectangle’s diagonal splits its opposite angles into 55° and x . Find x , and state the general rule used.

Answer: $x = 90 - 55 = 35^\circ$. General rule: the two angles created by a rectangle’s diagonal at any corner always sum to 90° , since the rectangle’s full corner angle is 90° .

Q9. Explain why a rectangle’s diagonal must always be longer than either of its sides.

Answer: The diagonal is the hypotenuse of a right triangle formed by two adjacent sides of the rectangle, and in any right triangle the hypotenuse is the longest side — so the diagonal is always longer than either individual side.

Q10. What is the key difference between how this chapter constructs angles compared to a compass-only angle-bisector method?

Answer: This chapter constructs and measures angles using a **protractor** directly (e.g., marking exactly 90° , 60° , or 40°), rather than using compass-arc angle-bisection or angle-transfer techniques.

Long Answer / Reasoning Questions

Q11. A rectangle has side 6 cm and diagonal 10 cm. Describe how you would construct it, and explain why this construction is possible.

Answer: Draw side $AB = 6$ cm, then construct 90° perpendiculars at A and B. With centre A and radius 10

cm, draw an arc cutting the perpendicular from B; with centre B and radius 10 cm, draw another arc cutting the perpendicular from A. Join the two intersection points to complete the rectangle. This construction is possible because the diagonal (10 cm) is greater than the given side (6 cm), which must always be true in a real rectangle (the diagonal is the longest line inside it).

Q12. Explain, with reasoning, why a rectangle whose diagonal splits opposite angles exactly in half ($45^\circ/45^\circ$) must be a square, while a rectangle split into $60^\circ/30^\circ$ is not.

Answer: When the diagonal splits a corner into two equal 45° angles, the triangle formed on each side of the diagonal is isosceles with equal base angles, forcing the two adjacent sides of the rectangle to be equal in length — making it a square. When the split is unequal ($60^\circ/30^\circ$), the two adjacent sides are not forced to be equal, so the shape remains a general (non-square) rectangle.

Q13. A student wants to build a rectangle from 6 identical squares arranged in a single row. If each square has side 2.5 cm, what should the rectangle's dimensions be?

Answer: Length = $6 \times 2.5 = 15$ cm; breadth = 2.5 cm (the side of one square). So the rectangle measures 15 cm $\times$ 2.5 cm.

Q14. Explain why you cannot construct a 4-sided closed figure with three 90° angles and one 80° angle.

Answer: The interior angles of any quadrilateral must add up to 360° . Three 90° angles already total 270° , leaving only 90° for the fourth angle to close the figure properly as a simple quadrilateral with straight sides in the intended rectangular shape — an 80° angle would leave the figure unable to close correctly as a rectangle-like shape with right angles at the other three corners.

Q15. Describe how to construct a rhombus with side 6 cm and one angle of 50° , and explain how it differs from a square with the same side length.

Answer: Draw side AB = 6 cm, mark a 50° angle at A and B using a protractor, then mark AD = BC = 6 cm along these angled lines and join the four points. Unlike a square of side 6 cm (which has all four angles = 90°), this rhombus has all sides equal (6 cm) but its angles are 50° and 130° instead of 90° — demonstrating that “all sides equal” does not by itself guarantee a square.