Practice 1-5

Basic Constructions

Construct each figure as directed.

1. Construct \( \overline{AB} \) congruent to \( \overline{XY} \). Check your work with a ruler.

2. Construct the perpendicular bisector of \( \overline{XY} \).

3. Construct a triangle whose sides are all the same length as \( \overline{XY} \).

4. Construct the angle bisector of \( \angle Z \).

Check your work with a protractor.

5. a. Construct a 90° angle.
   
   b. Construct a 45° angle.

6. Construct \( \overline{AB} \) so that \( AB = MN + OP \).

7. Construct \( \overline{KL} \) so that \( KL = OP - MN \).

8. Construct \( \angle A \) so that \( m\angle A = m\angle 1 + m\angle 2 \).

9. Construct \( \angle B \) so that \( m\angle B = m\angle 1 - m\angle 2 \).

10. Construct \( \angle C \) so that \( m\angle C = 2m\angle 2 \).

11. Construct the angle bisector of \( \angle X \).

12. Construct \( \angle W \) so that \( m\angle W = 2m\angle X \).

13. Construct \( \angle Z \) so that \( m\angle Z = \frac{1}{2} m\angle X \).

Write true or false.

14. \( \overline{AB} \cong \overline{XY} \)

15. \( m\angle 1 = 40 \)

16. If \( m\angle A = 80 \), then \( \angle A \) is obtuse.

17. The perpendicular bisector of a line segment creates four 90° angles.

18. If \( m\angle 1 = 45 \) and \( m\angle 2 = m\angle 1 \), then \( m\angle 1 + m\angle 2 = 90 \).

19. For a given \( \angle A \), \( \frac{1}{2} \cdot m\angle A = 2 \cdot m\angle A \).

20. If angles 3 and 4 are complementary and \( m\angle 3 = m\angle 4 \), then \( m\angle 4 = 45 \).