LESSON 2.5

NAME _____ DATE _____

Challenge: Skills and Applications

For use with pages 102–107

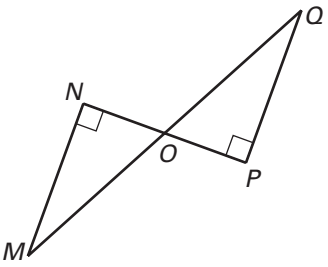
In Exercises 1–4, assume that *B* is the midpoint of $\overline{AC}$, *C* is the midpoint of $\overline{BD}$, and *D* is the midpoint of $\overline{BE}$.

1. If $BC = 7$, find DE and AE.
2. If $CE = 9$, find AB and AE.
3. If the coordinate of A is 0 and the coordinate of B is 4, find the coordinates of C, D, and E.
4. If the coordinate of B is 3 and the coordinate of E is -9, find the coordinates of A, C, and D.

In Exercises 5–8, assume that *M* is the midpoint of $\overline{UV}$, *X* is the midpoint of $\overline{UM}$, and *Y* is the midpoint of $\overline{XV}$.

5. If $UV = 16$, find UX and XY.
6. If $MY = 5$, find XY and UV.
7. If the coordinate of X is 7 and the coordinate of Y is 13, find the coordinates of U, M, and V.
8. If the coordinate of U is 2 and the coordinate of M is -10, find the coordinates of X, Y, and V.

In Exercises 9–11, use the diagram shown. Assume that *O* is the midpoint of $\overline{NP}$, *O* is the midpoint of $\overline{MQ}$, and $\angle N$ and $\angle P$ are right angles.



9. If $MN = 15$ and $OP = 8$, find NO and MO.
10. If $OP = 28$ and $PQ = 45$, find MO and MQ.
11. If $MO = 65$ and $NP = 66$, find PQ and MQ.
12. Write a two-column proof. You may use the Pythagorean theorem as a reason.

    Given: $AD = 13$, $CD = x$, $BD = 12$, $\overline{BD} \cong \overline{AC}$, $\angle C$ is a right angle.

    Prove: $x^2 = 25$