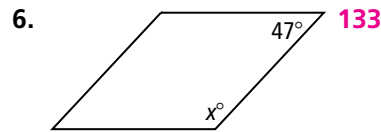
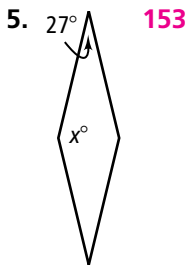
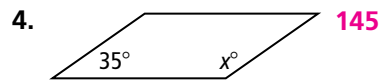
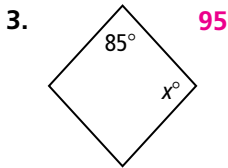
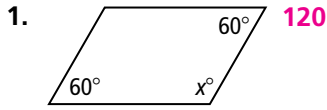


Practice

Form G

Properties of Parallelograms

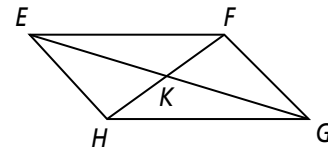
Find the value of x in each parallelogram.



Developing Proof Complete this two-column proof.

7. **Given:** $\square EFGH$, with diagonals \overline{EG} and \overline{HF}

Prove: $\triangle EFK \cong \triangle GHK$



Statements	Reasons
1) ? $\square EFGH$, with diagonals \overline{EG} and \overline{HF}	1) Given
2) ? $\overline{FK} \cong \overline{HK}$, $\overline{GK} \cong \overline{EK}$	2) The diagonals of a parallelogram bisect each other.
3) $\overline{EF} \cong \overline{GH}$	3) ? Opposite sides of parallelogram are \cong.
4) ? $\triangle EFK \cong \triangle GHK$	4) ? SSS

Algebra Find the values for x and y in $\square ABCD$.

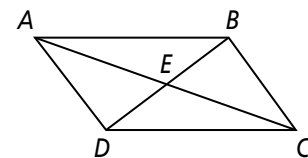
8. $AE = 3x$, $EC = y$, $DE = 4x$, $EB = y + 1$ **1; 3**

9. $AE = x + 5$, $EC = y$, $DE = 2x + 3$, $EB = y + 2$ **4; 9**

10. $AE = 3x$, $EC = 2y - 2$, $DE = 5x$, $EB = 2y + 2$ **2; 4**

11. $AE = 2x$, $EC = y + 4$, $DE = x$, $EB = 2y - 1$ **3; 2**

12. $AE = 4x$, $EC = 5y - 2$, $DE = 2x$, $EB = y + 14$ **12; 10**



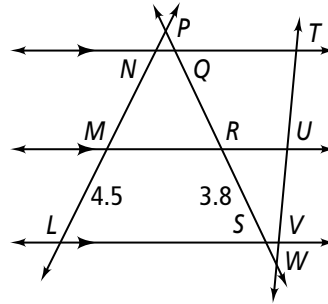
Practice (continued)

Form G

Properties of Parallelograms

In the figure, $TU = UV$. Find each length.

13. NM 4.5 14. QR 3.8
 15. LN 9 16. QS 7.6



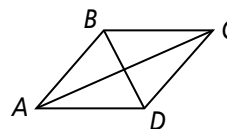
Find the measures of the numbered angles for each parallelogram.

17. 105; 75 18. 68; 112; 68
 19. 54; 102; 54 20. 60; 60
 21. 55; 105; 55 22. 32; 98; 50
 23. 40; 140; 40 24. 113; 45; 22

25. **Developing Proof** A rhombus is a parallelogram with four congruent sides. Write a plan for the following proof that uses SSS and a property of parallelograms.

Given: Rhombus $ABCD$ with diagonals \overline{AC} and \overline{BD} intersecting at E

Prove: $\overline{AC} \perp \overline{BD}$



Use the def. of rhombus, reflexive property, and Theorem 43 that states that diagonals of a parallelogram bisect each other to show that two adjacent triangles are congruent by SSS. Use CPCTC to show there is a linear pair of congruent angles, making them right angles, and making the diagonals perpendicular.