Parallel lines: conditions and reasoning — Further practice

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Further practice 11

Two parallel coplanar lines are cut by a transversal. One angle is 46°. Find its alternate interior angle; state the reason.

Further practice 12

Two parallel coplanar lines are cut by a transversal. One angle is 95°. Find its same-side interior angle; state the reason.

Further practice 13

A pair of corresponding angles are 55° and 65°. Can these given angles justify parallelism? Explain.

Further practice 14

In one plane, a and b are each perpendicular to the same line c. Explain why a and b are parallel.

Extension 15

A learner writes “a is parallel to b because corresponding angles are equal; these angles are equal because a is parallel to b.” No equality was given. Diagnose and repair the reasoning.

Extension 16

The true statement “vertically opposite angles are equal” does not imply that every pair of equal angles are vertically opposite. Give a counterexample.