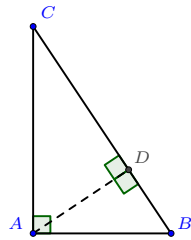# Similar Right Triangles

Two proofs.

**Problem** **1** *Adapted from Ohio's 2017 Geometry released item 17.*

Complete the following proof that $\triangle DAC$ is similar to $\triangle DBA$:

(a) $\triangle DBA \sim \triangle \boxed{ABC}$ *by (AA similarity ✓/ CPCTC/ right triangle similarity) because they share $\angle B$ and they each have a right angle.*

(b) $\triangle DAC \sim \triangle \boxed{ABC}$ *for the same reason because they share ($\angle A$ / $\angle B$ / $\angle C$ ✓) and they each have a right angle.*

(c) $\triangle DAC \sim \triangle DBA$ *because (CPCTC/ right triangle similarity / they are both similar to $\triangle ABC$ ✓).*

Problem **2** *A different proof, also adapted from Ohio's 2017 Geometry released item 17.*
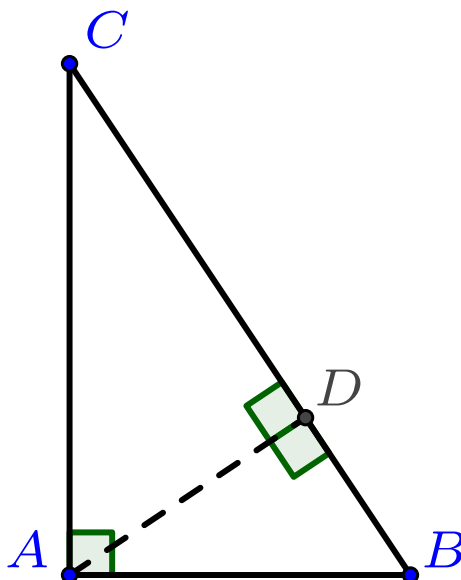
Complete the following proof that △DAC is similar to △DBA:

(a) ∠B and ∠BAD are $\boxed{complementary}$ because they are acute angles in a right triangle.

(b) ∠DAC and ∠BAD are complementary because they are adjacent angles that form ∠BAC, which is (right ✓/ acute/ obtuse).

(c) ∠B ≅ ∠DAC because they are both complementary to ∠BAD.

(d) △DAC ∼ △DBA by (AA similarity ✓/ CPCTC/ right triangle similarity) because ∠B ≅ ∠DAC and they each have a right angle.