⊕ Explore 1　Investigating an Isosceles Right Triangle

Discover relationships that always apply in an isosceles right triangle.

(A) The figure shows an isosceles right triangle. Identify the base angles, and use the fact that they are complementary to write an equation relating their measures.

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(B) Use the Isosceles Triangle Theorem to write a different equation relating the base angle measures.
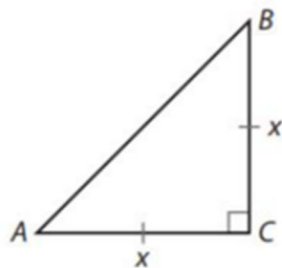
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(C) What must the measures of the base angles be? Why?

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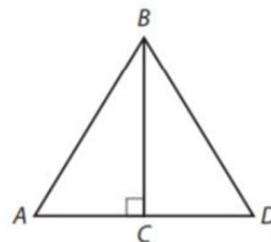(D) Use the Pythagorean Theorem to find the length of the hypotenuse in terms of the length of each leg, x.

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Discover relationships that always apply in a right triangle formed as half of an equilateral triangle.

(A) △ABD is an equilateral triangle and $\overline{BC}$ is a perpendicular from B to $\overline{AD}$. Determine all three angle measures in △ABC.

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(B) Explain why △ABC ≅ △DBC.

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(C) Let the length of $\overline{AC}$ be x. What is the length of $\overline{AB}$, and why?

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(D) Using the Pythagorean Theorem, find the length of $\overline{BC}$.