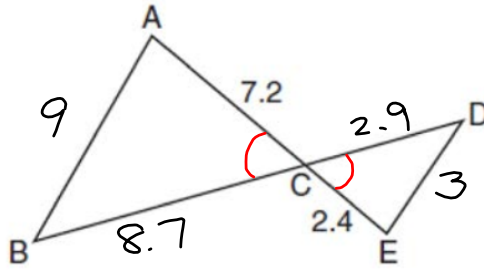## DO NOW

In the diagram below, $AC = 7.2$ and $CE = 2.4$.
Which statement is *not* sufficient to prove
$\triangle ABC \sim \triangle EDC$?

$\dfrac{2.7}{8.1} = \dfrac{2.4}{7.2}$

1) ~~$\overline{AB} \parallel \overline{ED}$~~ AA~
2) $DE = 2.7$ and $AB = 8.1$
3) $CD = 3.6$ and $BC = 10.8$ SAS~ $\dfrac{3.6}{10.8} = \dfrac{2.4}{7.2}$
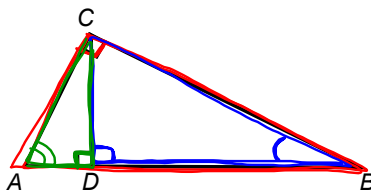4) $DE = 3.0$, $AB = 9.0$, $CD = 2.9$, and $BC = 8.7$

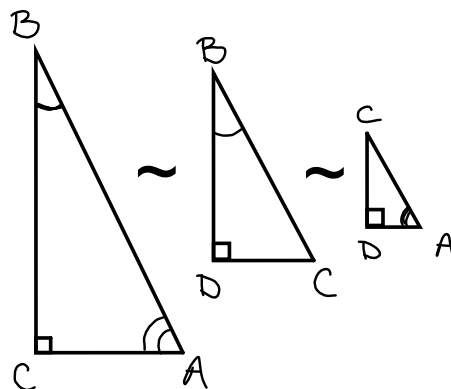SSS~ $\dfrac{3}{9} = \dfrac{2.9}{8.7} = \dfrac{2.4}{7.2}$

(Diagram labels: A, 7.2, 9, 2.9, D, C, 3, 2.4, B, 8.7, E)

Mar 1-10:58 AM

Proportions in a Right Triangle

The altitude to the hypotenuse of a right triangle divides the triangle into two similar triangles that are also similar to the original triangle
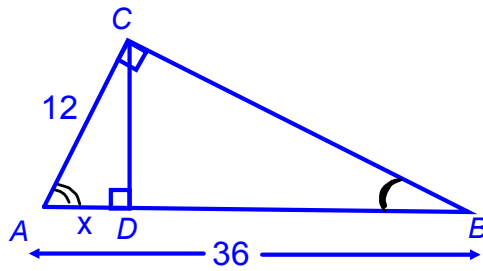
(Diagram: triangle with vertices C, A, D, B)

ΔABC ~ ΔCBD ~ ΔACD

(Three triangles shown with ~ symbols between them, labeled B, C, A, D)

Mar 1-11:13 AM

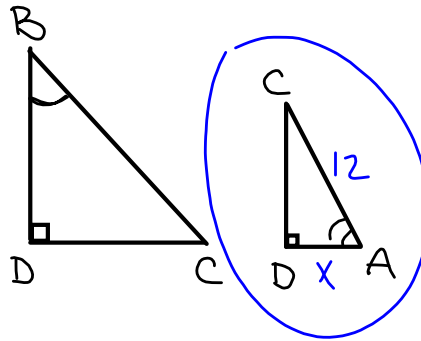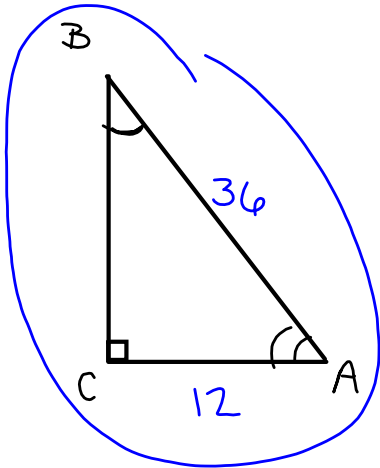1. In right $\triangle ABC$, altitude CD is drawn to hypotenuse AB. Find AD.
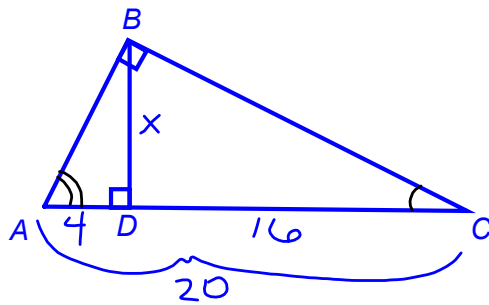
$$\frac{36}{12} = \frac{12}{x}$$
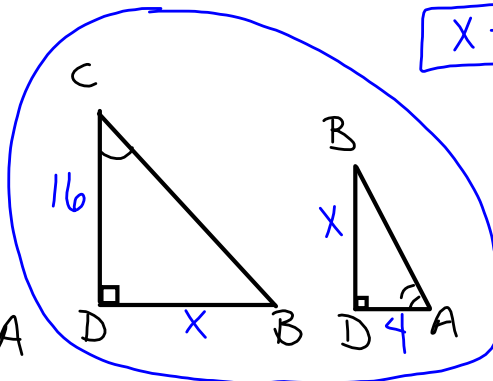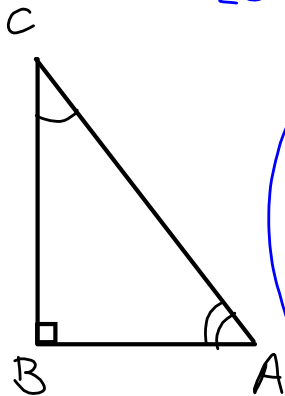
$$36x = 144$$

$$x = 4$$

$$\boxed{AD = 4}$$

Mar 1-11:10 AM

2. In right $\triangle ABC$, altitude BD is drawn to hypotenuse AC. If AD = 4 and DC = 16, find DB.
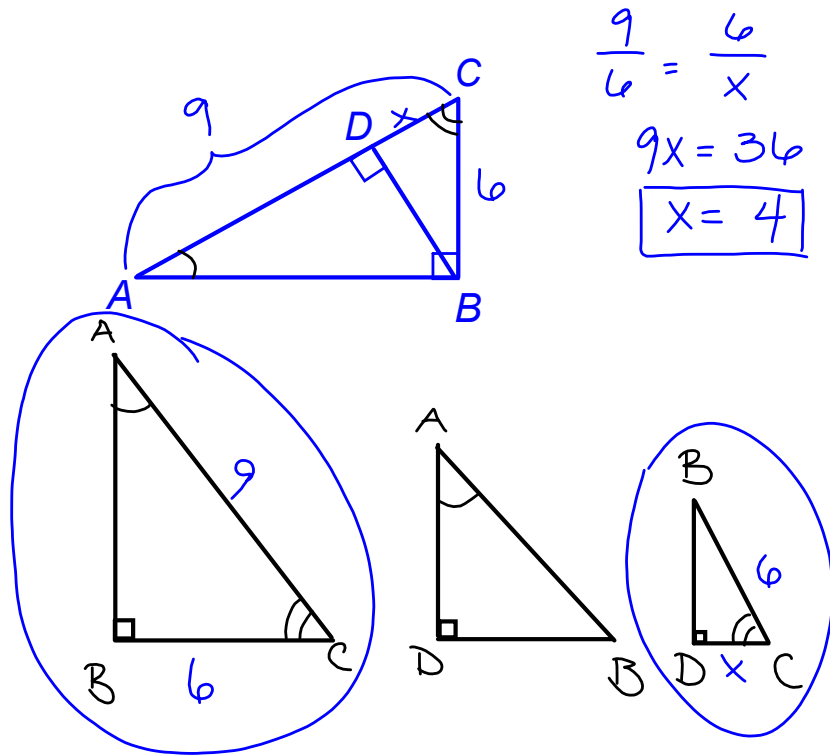
$$\frac{16}{x} = \frac{x}{4}$$

$$\sqrt{x^2} = \sqrt{64}$$

$$\boxed{x = 8}$$

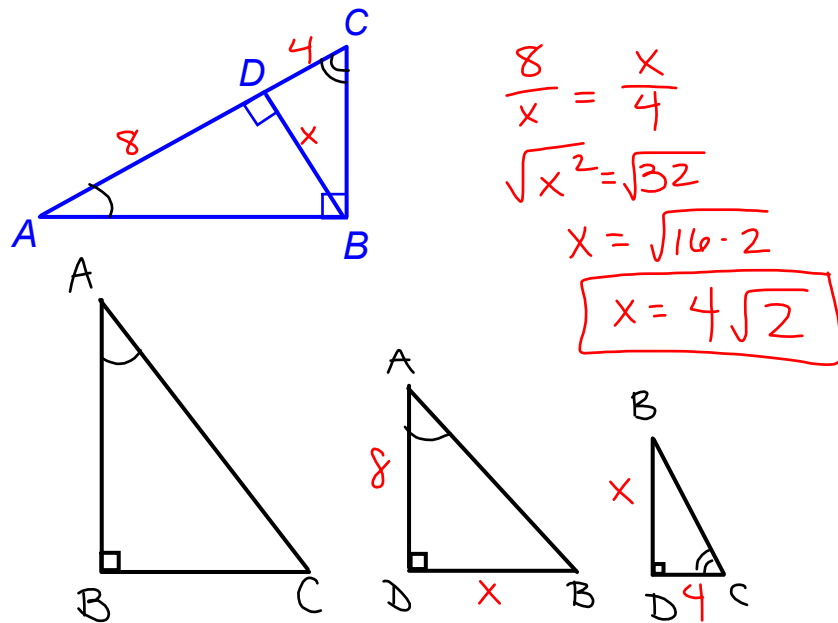Mar 2-11:29 AM

3. In right $\triangle ABC$, altitude BD is drawn to hypotenuse AC.
    If $CB = 6$ and $AC = 9$, find DC.

$$\frac{9}{6} = \frac{6}{x}$$

$$9x = 36$$

$$\boxed{x = 4}$$

Mar 2-11:29 AM

4. In right $\triangle ABC$, altitude BD is drawn to hypotenuse AC.
    If $AD = 8$ and $DC = 4$, find DB in simplest radical form.

$$\frac{8}{x} = \frac{x}{4}$$

$$\sqrt{x^2} = \sqrt{32}$$

$$x = \sqrt{16 \cdot 2}$$

$$\boxed{x = 4\sqrt{2}}$$

Mar 2-11:39 AM

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