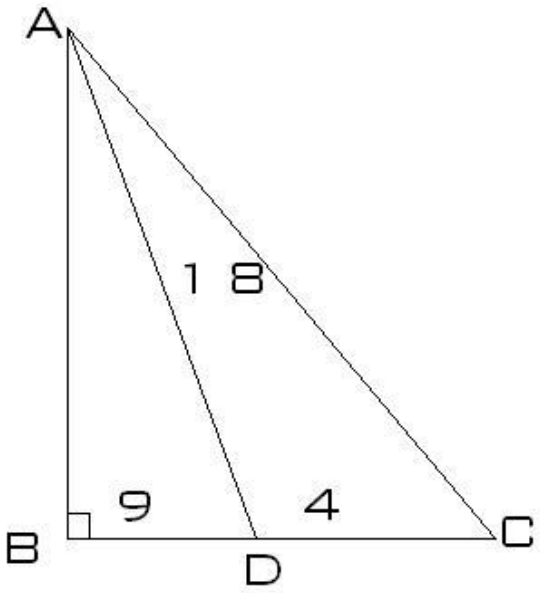
**Task:** ABC is right angled at B, and D is a point on BC. if AD=18cm, BD= 9cm and CD=4cm, find AC.




**Solution:**

From ABD, by using Pythagorean theorem: $|AB| = \sqrt{|AD|^2 - |BD|^2} = \sqrt{18^2 - 9^2} = \sqrt{2^2 9^2 - 9^2} = 9\sqrt{4-1} = 9\sqrt{3}$ (cm)

Therefore, from ABC we can find AC: $|AC| = \sqrt{|AB|^2 + |BC|^2} = \sqrt{\left(9\sqrt{3}\right)^2 + (|BD| + |DC|)^2} = \sqrt{3 * 81 + (4+9)^2} = \sqrt{243 + 13^2} = \sqrt{243 + 169} = \sqrt{412} = \sqrt{4 * 103} = 2\sqrt{103}$ (cm)

**Answer:** $AC\ is\ 2\sqrt{103}\ cm$