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quadratic equations

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14x

10th Maths - Chapter 4

This is Problem-5from Exercise 4.2

1. The altitude of a right triangle is 7 cm less than its base.if the hypotenuse is 13 cm,find the other two sides.
   Solution:
   Given Data:
   altitude = x-7
   hypotenuse = 13
   $base^2 + altitude^2 = hypotenuse^2$
   $x^2 + (x - 7) = (13)^2$
   $x^2 + x^2 + (49) - 14x = (169 \ (2x)^2 - (14x) - (120) = (0)$
   $(x)^2 - (7x) - (60) = (0)(x)^2$
   $(12x) + (5x) - (60) = (0) \ x(x - 12) + 5(x - 12) = 0$
   $(X + 5)(x - 12) = 0?$
   $x = -12 or 5$
   sides cannot be negative so x=12
   so, base = 12cm,BC = 12
   ab = (12-7)=5