

Geometry Worksheet: Right Triangle (1)

1. ABC is a right triangle and BD is perpendicular to AC. Find the length of AD, DC and BD.

$$6^2 + 8^2 = (x+y)^2 \quad \text{Pythagora}$$

$$\Rightarrow \underline{x+y=10}$$

$$\text{Pythagora: } z^2 + y^2 = 8^2$$

$$\text{Pythagora: } z^2 + x^2 = 6^2$$

$$\text{Subtract: } y^2 - x^2 = 8^2 - 6^2$$

$$\Rightarrow (y-x)(y+x) = 28 \quad \Rightarrow y-x = \frac{28}{10} = 2.8$$

$$\begin{cases} \cancel{y} + \cancel{x} = 10 \\ y - x = 2.8 \end{cases}$$

$$2y = 12.8 \quad \Rightarrow y = \underline{\underline{6.4}} \quad (\text{DC})$$

$$x = 10 - y = \underline{\underline{3.6}} \quad (\text{AD})$$

$$z^2 = 8^2 - y^2 = 8^2 - (6.4)^2 =$$

$$\underline{\underline{z = 4.8}} \quad (\text{BD})$$