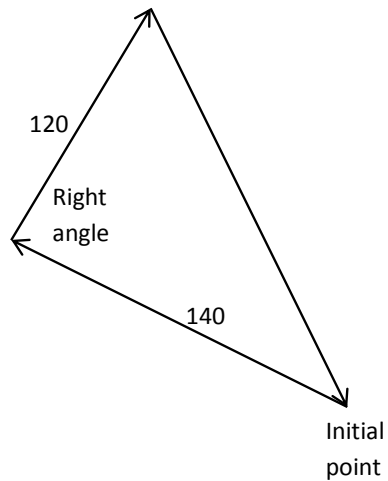The plane flew 140 mi on some course and then turned by 90 degrees and flew 120 mi. To find total distance the plane flew we need to find the remaining third side of the triangle.

Since the triangle is right the third side may be found using the Pythagoras theorem:

$$c^2 = a^2 + b^2$$

Here c is unknown side, $a = 140, b = 120$. So

$$c = \sqrt{a^2 + b^2} = 184.35$$

So total distance equals

$$a + b + c = 140 + 120 + 184.35 = 444.35$$