Answer 37

37. If $(a + b)^2 = 25$ and $(a - b)^2 = 45$, then $a^2 + b^2 = ?$

First, expand both $(a + b)^2$ and $(a - b)^2$

$(a + b)^2 = a^2 + 2ab + b^2 = 25$

$(a - b)^2 = a^2 - 2ab + b^2 = 45$

These two equations can then be added to eliminate the 2ab expressions:

$\ a^2 + 2ab + b^2 = 25$

$\underline{+\ a^2 - 2ab + b^2 = 45}$

$2a^2 + 2b^2 = 70$

Divide by 2 to get $a^2 + b^2 = 35$, so answer A