

## Paradox – Completing the Square

Here is a paradox that involves completing the square. Where is the error in this argument?

$$16 - 36 = 25 - 45$$

$$4^2 - 9^2 = 5^2 - 9 \times 5$$

$$4^2 - 9 \times 4 + \frac{81}{4} = 5^2 - 9 \times 5 + \frac{81}{4}$$

$$\left(4 - \frac{9}{2}\right)^2 = \left(5 - \frac{9}{2}\right)^2$$

$$4 - \frac{9}{2} = 5 - \frac{9}{2}$$

$$4 = 5$$