

Taken in isolation, each step is valid and acceptable...

$$A = B$$

$$A^2 = AB$$

$$A^2 - B^2 = AB - B^2$$

$$(A + B)(A - B) = (A - B)B$$

$$\frac{(A + B)(A - B)}{(A - B)} = \frac{(A - B)B}{(A - B)}$$

$$(A + B) = B$$

$$A + A = A$$

$$2A = A$$

$$2 = 1$$

But the overall result is absurd.