

What step in this proof causes the incorrect conclusion?

Proof that $2 = 1$

$a = b$	Pick two equal numbers, a and b
$a^2 = ab$	Multiple both sides by a
$a^2 - b^2 = ab - b^2$	Subtract b^2 from both sides
$(a - b)(a + b) = (a - b)b$	Factor each side
$a + b = b$	Cancel the common factor on both sides or divide both sides by $a - b$
$b + b = b$	Substitute $a = b$ (from step one)
$2b = b$	Simplify
$2 = 1$	Divide both sides by b