COMPUTER SCIENCE E-20, SPRING 2014
Check-in Problems
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1. Each of the following two claims and corresponding proofs is incorrect. For each one, explain why each proof is incorrect.

   (i) Claim: $1c = \$1$

   $$1c = \$0.01 = (\$0.1)^2 = (10c)^2 = 100c = \$1$$

   Solution: The propistion above holds true until we got here:

   $$1c = \$0.01 = (\$0.1)^2 = (10c)^2$$

   $$(10c)^2 \neq (100c)$$

   $\therefore$ our propistion is invalid this is because, $(10c)^2 = (100c)^2$

   (ii) Claim: If $a = b$ then $a = 0$

   $$a = b$$
   $$a^2 = ab$$
   $$a^2 - b^2 = ab - b^2$$
   $$(a - b)(a + b) = (a - b)b$$
   $$a + b = b$$
   $$a = 0$$

   Solution: The propistion above holds true until we got here:

   $$(a - b)(a + b) = (a - b)b$$

   This is because we are given the following in our propistion $a = b$ and it was said that if our propistion was true then $a = 0$, which also means that $a - b = 0$, however division by 0 leads to a mathematical error so our original claim does not hold