◆ **Thm F2**

if $a \cdot b = 0$, then at least one member of $\{a, b\}$ must be zero.

[05-12-04C-T7]

F2

Work the following using only theorems up to F2, axioms, and definitions.

You must show every step. Write the justification, but only for those steps that use theorems.

■ **A. Solve the following for x. Use the theorem F2 wherever you can.**

[1] $(x-2)(x-3) = 0$ (There are two answers values of x that make this true.)

[2] $(x+5)(x-4) = 0$

[3] $(x+3)(x+7) + 13 = 13$

[4] $5(x+2)(x-5) + 5 = 5 + 0\left(\frac{x}{119} + \frac{\sqrt{115}}{\sqrt{117}}\right)$

[5] Prove theorem F2.

■ A. Answers

[1] $x = 2$ or $x = 3$

[2] $x = -5$ or $x = 4$

[3] $x = -3$ or $x = -7$

[4] $x = -2$ or $x = 5$