

133. $x < (-\frac{1}{2})$ (Substitute eq 132 in 124)
 134. $2 > 0$ (Thm 2.1.8(c)) 135. $2 \cdot x > 2 \cdot 1$ (Thm 2.1.7(c))
 136. $2 \cdot 1 = 2$ (M3) 137. $2 \cdot x > 2$ (Substitute eq 136 in 135)
 138. $(-1) > 2$ (Thm 2.1.7(a) or 118, 137)
 139. $(-1) + 1 > 2 + 1$ (Thm 2.1.7(b)) 140. $0 > 2 + 1$ (Substitute eq 29 in 139)
 141. $2 + 1 = 3$ (Successor func) 142. $0 > 3$ (Substitute eq 141 in 140)
 143. $3 > 0$ (Thm 2.1.8(c)) 144. By Trichotomy prop, stnt $0 > 3$ is F.
 145. $\therefore x + (-1) > 0$ is False
 146. By stnt 100, $(x + (-1)) < 0$
 147. $(x + (-1)) + 1 < 0 + 1$ (Thm 2.1.7(b)) 148. $x < 0 + 1$ (Substitute eq 107 in 147)
 149. $x < 1$ (Substitute eq B1 in 148)

150. Claim: $1 > -(\frac{1}{2})$

151. $-(\frac{1}{2}) = \frac{(-1)}{2}$ (Thm Ex 2.1, 2(d). \therefore By stnt 134 and Trichotomy prop, $2 \neq 0$)
 152. $-(\frac{1}{2}) \cdot 2 = \frac{(-1)}{2} \cdot 2$ (Substitute eq 151)
 153. $\frac{(-1)}{2} = (-1) \cdot (\frac{1}{2})$ (Defn. of division)
 154. $\frac{(-1)}{2} \cdot 2 = ((-1) \cdot (\frac{1}{2})) \cdot 2$ (Substitute eq 153)
 155. $((-1) \cdot (\frac{1}{2})) \cdot 2 = (-1) \cdot (\frac{1}{2} \cdot 2)$ (M2)
 156. $((-1) \cdot (\frac{1}{2})) \cdot 2 = (-1) \cdot 1$ (Substitute eq 127 in RHS of 155)
 157. $(-1) \cdot 1 = (-1)$ (M3) 158. $((-1) \cdot (\frac{1}{2})) \cdot 2 = (-1)$ (Transitivity of eq 156, 157)
 159. $\frac{(-1)}{2} \cdot 2 = (-1)$ (Transitivity of eq 154, 158)

151. Proof: $1 > 0$ (Thm 2.1.8(b)) 152. $1 + (-1) > 0 + (-1)$ (Thm 2.1.7(b))

153. $0 > 0 + (-1)$ (Substitute eq 113 in 152)
 154. $0 > (-1)$ (Substitute eq 110 in 153)
 155. $\frac{1}{2} \cdot 0 > \frac{1}{2} \cdot (-1)$ (Stnt 119, Thm 2.1.7(c))
 156. $\frac{1}{2} \cdot 0 = 0$ (Thm 2.1.2(c)) 157. $0 > \frac{1}{2} \cdot (-1)$ (Substitute eq 156 in 155)