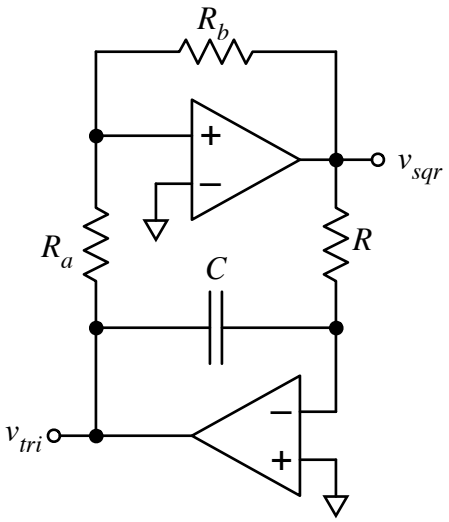
EE 230 — HW 3.21 Name_____



Design the non-linear oscillator circuit shown at right so that the oscillation frequency is 1500 Hz. Assume that the op-amps have output voltage limits at ±5 V, but otherwise are ideal. The circuit should provide two outputs — a square wave that oscillates ±5 V and triangle wave that ramps up and down between ±2 V. Your design should specify the size of the hysteresis loop (i.e. you need to specify V_{TL} and V_{TH}), which means that you must specify the R_b/R_a ratio and the RC time needed.

Make a sketch of the expected output voltages as a function of time. Be sure to label important details (voltage levels, axis-crossing times, etc).

Be sure to show your design equations and how you arrived at the final specifications. Do not use the javascript calculator to guess your way to an answer!

R_b/R_a = _____ RC = _____

V_{TL} = _____ V_{TH} = _____

Write your answers — and whatever work will fit — on this sheet. Staple any sheets with additional work behind.