Problem: Suppose we have a biosensor with an output range of 0.5V—1.0V for an oxygen range of 1.0—250.0 ppm. Design a sensor interface circuit that provides a 0.0V—5.0V range for this biosensor system.

Answer:

Let $R_1 = 10k$ and $R_f = 90k$

Thus $V_{ref} = \frac{5}{9}V$