**Chapter 5, Solution 46.**

Using only two op amps, design a circuit to solve

$$-v_{out} = \frac{v_1 - v_2}{3} + \frac{v_3}{2}$$

**Solution**

$$-v_o = \frac{v_1}{3} + \frac{1}{3}(-v_2) + \frac{1}{2}v_3 = \frac{R_f}{R_1}v_1 + \frac{R_x}{R_2}(-v_2) + \frac{R_f}{R_3}v_3$$

i.e. $R_3 = 2R_f$, $R_1 = R_2 = 3R_f$. To get $-v_2$, we need an inverter with $R_f = R_i$. If $R_f = 10k\Omega$, a solution is given below.