

Chapter 6, Solution 78.

Design an analog computer to simulate

$$\frac{d^2 v_o}{dt^2} + 2 \frac{dv_o}{dt} + v_o = 10 \sin 2t$$

where $v_o(0) = 2 \text{ V}$ and $v_o'(0) = 0$.

Solution

$$\frac{d^2 v_o}{dt^2} = 10 \sin 2t - \frac{2dv_o}{dt} - v_o$$

Thus, by combining integrators with a summer, we obtain the appropriate analog computer as shown below:



