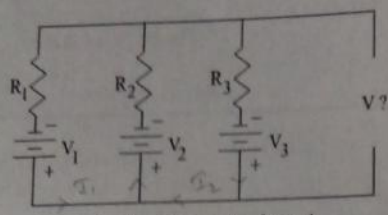
Figure 3



(a) Question number 4

4. (1 point) Identify the mathematical operation on the voltage sources achieved at the output V by the circuit shown in Figure (3a)

A. Mean of all voltages
B. Mode of all voltages
C. Median of all voltages
D. None of these

5. (2 points) The horizontal and vertical sensitivity knobs of a CRO are set to $50ms/div$ and $4V/div$ respectively. If a signal, $x(t) = 8cos(10\pi t + 30°)$ V is applied at Ch-1, find the number of vertical and horizontal divisions spanned by one cycle on the screen of the CRO.

A. Number of vertical div.: 4
B. Number of horizontal div.: 4

$-V_2 - (I_1 + I_2)R_2 - I_1R_1 + V_1 = 0$

$V = -V_1 + I_1R_1$

$-V_3 + I_2R_3 + (I_2 + I_1)R_2 + V_2 = 0$

$I_1R_1 - V_1 = I_2R_2 - V_2 - I_2$

$V_2 + I_2R_2 = V_3 - I_2R_3 = V_1 - I_1R_1 - I_1R_2$

$-I_1R_2$

$V_3 - I_2R_3 = V_1 - I_1R_2$

$-V_3R_2 + I_2R_3R_2 + (V_1 - V_3 - I_2R_3 + I_1$

$+ V_3R_2 = 0$

$I_1 = \frac{V_1 - V_3 - I_2R_3}{R_2}$

$\frac{16}{4}$

$\frac{V_1 \times R_1}{R_1 + \frac{R_2R_3}{R_2+R_3}}$

$\frac{V_1(R_1R_2 + R_1R_3)}{R_1R_2 + R_1R_3 + R_2R_3}$

$2 = (V_1 + V_2 + V_3)$

$\omega = 10\pi$

$\frac{V_2 \times R_2}{R_2 +}$

$\frac{2\pi}{10\pi} = \frac{1}{5}$

$= 2.00$