28. (a) R_2, R_3 and R_4 are in parallel. By finding a common denominator and simplifying, the equation $1/R = 1/R_2 + 1/R_3 + 1/R_4$ gives an equivalent resistance of

$$R = \frac{R_2R_3R_4}{R_2R_3 + R_2R_4 + R_3R_4} = \frac{(50\,\Omega)(50\,\Omega)(75\,\Omega)}{(50\,\Omega)(50\,\Omega) + (50\,\Omega)(75\,\Omega) + (50\,\Omega)(75\,\Omega)} = 19\,\Omega\ .$$

Thus, considering the series contribution of resistor R_1, the equivalent resistance for the network is $R_{\text{eq}} = R_1 + R = 100\,\Omega + 19\,\Omega = 1.2 \times 10^2\,\Omega$.

(b) $i_1 = \mathcal{E}/R_{\text{eq}} = 6.0\,\text{V}/(1.1875 \times 10^2\,\Omega) = 5.1 \times 10^{-2}\,\text{A}$; $i_2 = (\mathcal{E} - V_1)/R_2 = (\mathcal{E} - i_1R_1)/R_2 = [6.0\,\text{V} - (5.05 \times 10^{-2}\,\text{A})(100\,\Omega)]/50\,\Omega = 1.9 \times 10^{-2}\,\text{A}$; $i_3 = (\mathcal{E} - V_1)/R_3 = i_2R_2/R_3 = (1.9 \times 10^{-2}\,\text{A})(50\,\Omega/50\,\Omega) = 1.9 \times 10^{-2}\,\text{A}$; $i_4 = i_1 - i_2 - i_3 = 5.0 \times 10^{-2}\,\text{A} - 2(1.895 \times 10^{-2}\,\text{A}) = 1.2 \times 10^{-2}\,\text{A}$.