1. (25 pts) Find the resistor values. Show your work
Note: feel free to show answers & work right on the schematic
a) $R_1 = ?$
   b) $R_2 = ?$
   c) $R_3 = ?$
   d) How much power is dissipated by $R_3$?
   $P_{R3} = ?$

2. (25 pts) Use the method of superposition to find the voltage across $R_1$ ($V_{R1}$) and the current through $R_2$ ($I_{R2}$). Be sure to clearly show and circle your intermediate results.
3. (25 pts) a) Find and draw the Thévenin equivalent of the circuit shown. The load resistor is \( R_L \).

\[ R_1 = 9.0 \, \Omega \]
\[ R_2 = 12.0 \, \Omega \]
\[ R_3 = 6.0 \, \Omega \]
\[ R_4 = 2.0 \, \Omega \]
\[ R_L = 10.0 \, \Omega \]
\[ I_S = 500 \, \text{mA} \]

b) Find the load current using your Thévenin equivalent circuit.

c) Find and draw the Norton equivalent of the same circuit.

d) Find the load voltage using your Norton equivalent circuit.

4. (25 pts) Use nodal analysis to find the readings of the two ideal meters. You MUST show all the steps of nodal analysis work to get credit, including drawing appropriate symbols and labels on the circuit shown.

Answers

1. a) 100-\Omega  b) 125-\Omega  c) 250-\Omega  d) 0.1-W

2. 36-mA  7.8-V

3. a) 9-V  20-\Omega  b) 300-mA  c) 0.45-A  20-\Omega  d) 3-V

4. a) 10.4-V  b) 147-mA