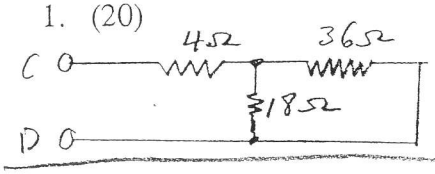
ECE 252 | **Introduction to Electrical Engineering** | **Quiz 2P**
100 Points | **Show your work.** | **Practice Solution**

HINT: All the answers are integers.

1. (20)



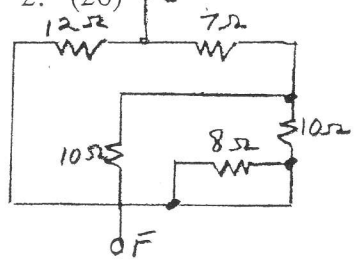
Note || means "in parallel with"

$36||18 = \frac{36 \cdot 18}{36+18} = 12$

$R_{CD} = 4 + 12 = \underline{16\,\Omega}$

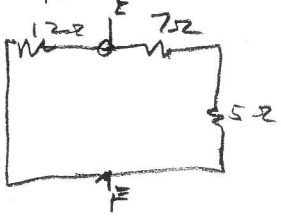
$R_{CD} = \underline{16\,\Omega}$

2. (20)



8Ω is "shorted out."

$10||10 = 5\,\Omega$

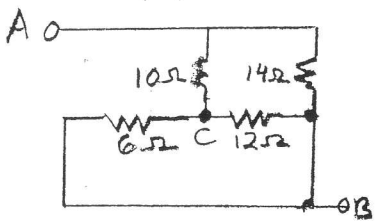


$7 + 5 = 12$

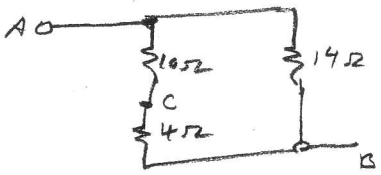
$R_{EF} = \frac{12 \cdot 12}{12+12} = 6\,\Omega$

$R_{EF} = \underline{6\,\Omega}$

3. (20)



$12||6 = 4\,\Omega$



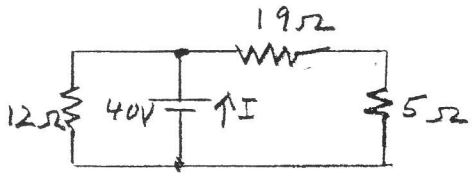
$10 + 4 = 14$

$R_{AB} = \frac{14 \cdot 14}{14+14} = 7\,\Omega$

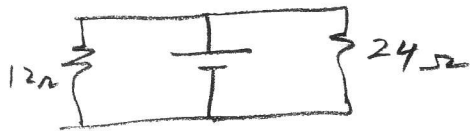
$R_{AD} = \underline{7\,\Omega}$

4. (20)

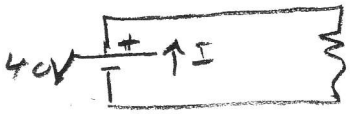
Use network reduction (combining resistors in series and parallel) to find I.



$19 + 5 = 24$



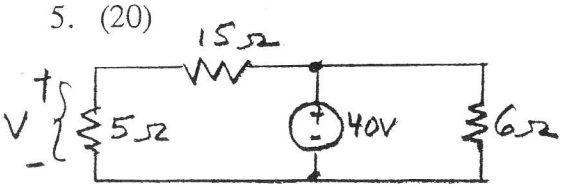
$24||12 = \frac{24 \cdot 12}{24+12} = 8\,\Omega$



$I = V/R = 40/8 = \underline{5A}$

5. (20)

Use the voltage divider formula to find V.



$V_2 = \frac{V_S R_2}{R_1 + R_2} = \frac{40(5)}{15+5} = \underline{10V}$