ECE 3 HW 1

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Since the current flowing through the 12Ω resistor is $1A$ we must have the equivalent resistance viewed from the voltage source is 20Ω. Therefore we must have

$$\frac{10R}{10+R} = 8$$
$$10R = 80 + 8R$$
$$2R = 80$$
$$R = \boxed{40\Omega}$$

And the voltage drop across R is

$$20\frac{8}{20} = \boxed{8V}$$