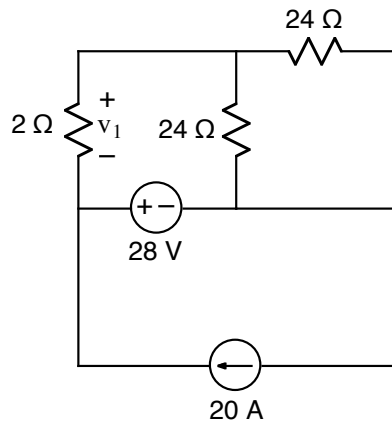**Ex:**

Calculate v_1.

sol'n: We can use a voltage divider consisting of the 28V src, the 2Ω Resistor, and the two 24Ω resistors in parallel:

$$v_1 = -28V \cdot \frac{2\Omega}{2\Omega + 24\Omega \| 24\Omega}$$

$$= -28V \cdot \frac{2\Omega}{2\Omega + 24\Omega \cdot 1\|1} \qquad 1\|1 = \frac{1\cdot 1}{1+1} = \frac{1}{2}$$

$$= -28V \cdot \frac{2\Omega}{2\Omega + 12\Omega}$$

$$v_1 = -4V$$

Note: We have a minus sign whenever the + sign of the resistor voltage measurement is on the side away from the + sign of the v src.

Note: We have a voltage divider when
the following conditions are met:
i) The voltage across two or more
R's in series is known.
ii) The current thru the R's in
series is the same.

Note: We can verify that we have
a v-divider in this circuit
be redrawing it.
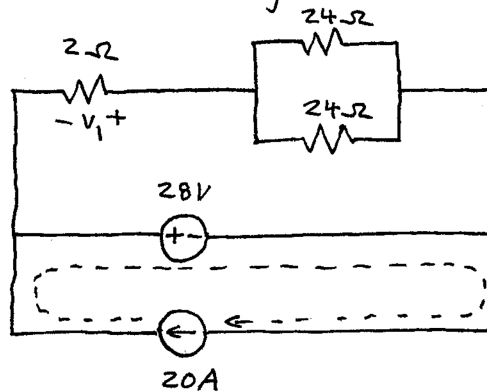
The 20A affects the current
in the 28V source, but we
still have 28V across the R's.
The 20A just circulates in the
bottom half of the circuit.