

Question#26459

Farmer Crockett is preparing tomato seedlings for his spring planting by growing the small plants over five 46-ohms strip heaters wired in parallel.
a) How much current does each heater draw from a 120-V line? b) How much current do they all have together?

Solution:

a) According to the Ohm's law current on each heater is:

$$I = \frac{U}{R}$$

where: U is voltage = 120 V, R is resistance of the heater =46 ohms.

$$I = \frac{120}{46} = 2.609 \text{ A}$$

b) On parallel connection the total current is as sum of all currents:

$$I_{total} = I * 5 = 2.609 * 5 = 13.045 \text{ A}$$

Answer: current on each heater is: 2.609 A, the total current is 13.045 A.