

Ex. 45 A 1500-W electric heater is plugged into an outlet .....

$$I_{\max} = 20 \text{ A}$$
$$V = 120 \text{ volts}$$

$$I_{\text{WH}} = 1500 \text{ W} / 120 \text{ V} = \underline{\underline{12.5 \text{ A}}}$$

Hair dryer  $\Rightarrow$

$$I_1 = 600 \text{ W} / 120 \text{ V} = 5 \text{ A}$$
$$I_2 = 900 \text{ W} / 120 \text{ V} = 7.5 \text{ A}$$
$$I_3 = 1200 \text{ W} / 120 \text{ V} = 10.0 \text{ A}$$
$$I_4 = 1500 \text{ W} / 120 \text{ V} = 12.5 \text{ A}$$

What power setting on the hair dryer causes the circuit breaker to trip?

$$I_{\text{WH}} + I_2 = 20.0 \text{ A}$$

If you proceed on to the 3<sup>rd</sup> setting (1200 W), you will cause the circuit breaker to "trip".

1200 W will cause the circuit breaker to trip.

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