

- 36** The wire of a heating element has resistance  $R$ . The wire breaks and is replaced by a different wire.

Data for the original wire and for the replacement wire are shown in the table.

	length	diameter	resistivity of metal
original wire	$l$	$d$	$\rho$
replacement wire	$l$	$2d$	$2\rho$

What is the resistance of the replacement wire?

**A**  $\frac{R}{4}$

**B**  $\frac{R}{2}$

**C**  $R$

**D**  $2R$