

PHYS SPRINGBOARD: PARALLEL CIRCUITS



Electric Quantities

1. A simple circuit—such as a battery, bulb, and wire—can be characterized by the voltage, current, resistance, and power associated with it. What happens to these quantities when more and more resistors (bulbs or other electric devices) are connected to the circuit in **parallel**? Before answering, write definitions for each of the quantities.

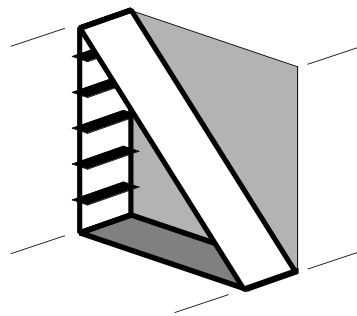
a. Voltage / Electromotive Force

b. Current

c. Resistance

d. Power

2. How is each of these quantities related to characteristics of the slide?



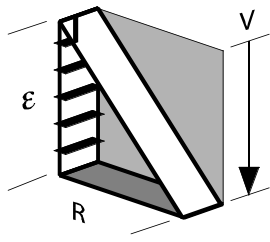
a. The _____ of the slide is like the **resistance** of a circuit.

b. The _____ of the slide is most like the **power** of a circuit.

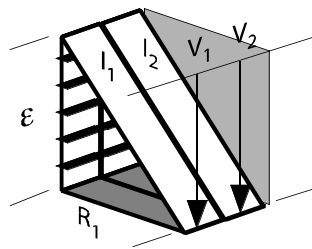
c. The _____ of a slide is most like the **voltage** of a circuit.

d. The _____ of a slide is most like the **current** of a circuit.

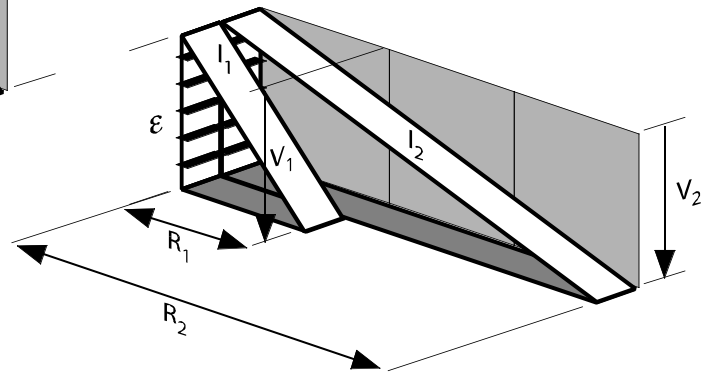
Comparative Slidology



THE SIMPLE SLIDE



TWO PARALLEL SLIDES



3. a. Compared to the simple slide, the elevation of a parallel slide is _____

b. Compared to the simple slide, the flow rate* (incline) of a parallel slide is _____

*The passenger capacity of the arrangement. For example, two identical slides can carry twice as many passengers as one.

c. Compared to the simple slide, the effective run length** of a parallel slide is _____

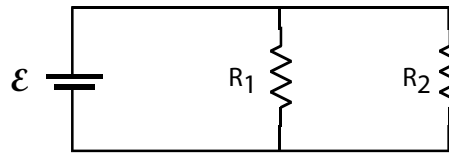
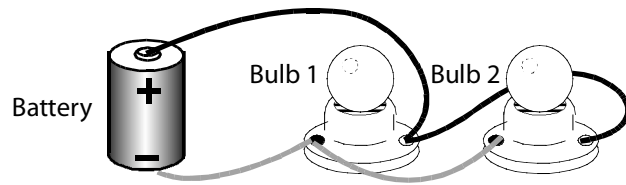
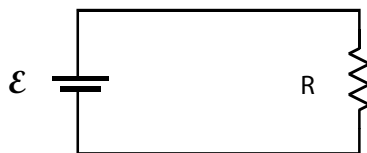
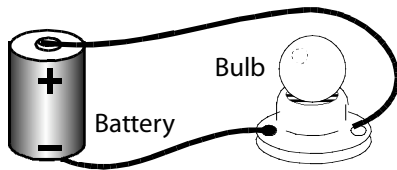
**The run length of a single, simple slide that would have the same flow rate as the parallel slide.

d. Compared to the simple slide, the bun-burning on a parallel slide is _____

4. What characteristic—if any—do both sections of a parallel slide **always** have in common?

___ Vertical drop ___ Incline ___ Run length ___ Bun-burning

Moving on to circuits



5. a. Compared to a simple circuit, the voltage of a parallel circuit is _____

b. Compared to a simple circuit, the current of a parallel circuit is _____

c. Compared to a simple circuit, the resistance of a parallel circuit is _____

d. Compared to a simple circuit, the power of a parallel circuit is _____

6. What characteristic—if any—do both resistors in a parallel circuit **always** have in common?

___ Voltage ___ Current ___ Resistance ___ Power