

Name: _____

Parallel Circuits Intro Problems

- 1) You are given a 12-volt battery, ammeter A , voltmeter V , resistor R_1 , and resistor R_2 . Resistor R_2 has a value of 3.0 ohms.
 - (a) Using appropriate symbols from the *Circuit Symbols* physics reference table, draw and label a complete circuit showing:
 - resistors R_1 and R_2 connected in parallel with the battery
 - the ammeter connected to measure the current through resistor R_1 , only
 - the voltmeter connected to measure the potential drop across resistor R_1
 - (b) If the total current in the circuit is 6.0 amperes, determine the equivalent resistance of the circuit.
 - (c) If the total current in the circuit is 6.0 amperes, determine the resistance of resistor R_1 . [*Show all calculations, including the equation and substitution with units.*]

- 2) An electric circuit contains two 3.0-ohm resistors connected in parallel with a battery. The circuit also contains a voltmeter that reads the potential difference across one of the resistors.
 - (a) Draw a diagram of the circuit described, using the symbols from the *Circuit Symbols* physics reference table. [*Assume availability of any number of wires of negligible resistance.*]

 - (b) Calculate the total resistance of the circuit. [*Show all work, including the equation and substitution with units.*]

- 3) An 18-ohm resistor and a 36-ohm resistor are connected in parallel with a 24-volt battery. A single ammeter is placed in the circuit to read its total current.

Draw a diagram of the circuit described using symbols from the *Circuit Symbols* physics reference table. [Assume the availability of any number of wires of negligible resistance.]