Ohm's Law Worksheet

Answer the following questions by:
- Identify the variables you have
- Identify the variable you are missing
- Use the formula to find the missing variable

1. What is the voltage in a circuit that has a current of 2.4 A and a resistance of 4.0 Ω?

$R = 4.0 Ω$
$V = x$
$I = 2.4 A$

$4.0 Ω = \dfrac{x}{2.4 A}$

$= \boxed{9.6 \text{ V}}$

2. A circuit has a resistance of 12 Ω and draws a current of 6.0 A what is the potential difference in the circuit?

$R = 12 Ω$
$V = x$
$I = 6.0 A$

$12 Ω = \dfrac{x}{6.0 A}$

$= \boxed{72 V .}$

3. A walkman uses a current of 2.0 A and has an internal resistance of 3.0 Ω, how many 1.5V batteries are required?

$R = 3.0 Ω$
$V = x$
$I = 2.0 A$

$3.0 Ω = \dfrac{x}{2.0 A}$

$\dfrac{6.0 V}{1.5 V} = \boxed{4 \text{ batteries}.}$

4. A TV set has 0.5 C pass through it in 5 s and has a resistance of 10 Ω, what is the potential difference?

$I = x$
$Q = 0.5 C$
$t = 5 s$

$I = \dfrac{0.5 C}{5 s} = 0.1 A$

$R = 10 Ω$
$V = x$
$I = 0.1 A$

$10 Ω = \dfrac{x}{0.1 A}$

$\boxed{x = 100 V}$ The answer is 1V

5. A circuit has a potential difference of 20 V and has a resistance of 4.5 Ω, how much current will the circuit use?

$R = 4.5 Ω$
$V = 20 V$
$I = x$

$4.5 Ω = \dfrac{20 V}{x}$

$\boxed{x = 4.4 A}$

6. A circuit has an internal resistance of 8.0 Ω and uses a potential difference of 12 V what is the current in the circuit?

$R = 8.0 Ω$
$V = 12 V$
$I = x$

$8.0 Ω = \dfrac{12 V}{x}$

$\boxed{x = 1.5 A}$