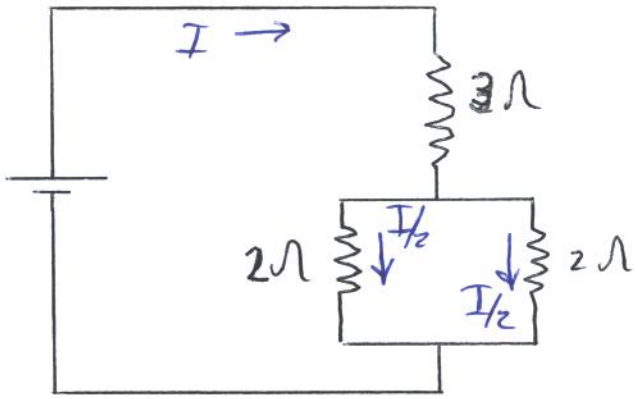
Quiz 10

Name: _____ Student Number: _____

1. A 10 volt battery is connected across two resistors as shown below.



a) (5 marks) Find the current in each of the resistors.

Two 2Ω resistors in parallel equivalent to $\left(\frac{1}{2}+\frac{1}{2}\right)^{-1} = 1\Omega$ resistor.

$3\Omega + 1\Omega$ resistors in series equivalent to 4Ω.

$\therefore I = \frac{10\ \text{volt}}{4\Omega} = 2.5$ amp passes through 3Ω

$\frac{I}{2} = 1.25\ \text{A}$ passes through each 2Ω resistor.

b) (5 marks) Find the power dissipated in each of the resistors.

Power Dissipated in 3Ω resistor

is $P = I^2 R$

$= (2.5 \text{ amp})^2 \times 3\Omega$

$= 18.75$ watts

Power dissipated in each 2Ω resistor

is $P = (1.25 \text{ amp})^2 \times 2\Omega$.

$= 3.13$ watts

Total = 10 marks