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```
%{
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    HW 8: Kirchhoff's Law
%}
```

Clear command and the workspace windows

```
clc;
clear;
```

Voltage and Resistor values

```
v = [30; 5; -25];
r = [
    11 -3  0;
    -3  6 -1;
     0 -1  3
    ];
```

Calculations

Calculate the current using right division on the matrix

```
i = r \ v;

% Get each of the loop currents from the matrix
i1 = i(1);
i2 = i(2);
i3 = i(3);
fprintf('The current in loop 1 is %.2f amps\n', i1);
fprintf('The current in loop 2 is %.2f amps\n', i2);
fprintf('The current in loop 3 is %.2f amps\n\n', i3);

% Calculate the average current
iAvg = mean(i);
fprintf('The average current is %.2f amps\n\n', iAvg);

% Calculate the equivalent resistance using left division on the matrix
eqRes = v / iAvg;
fprintf('The equivalent resistance for loop 1 is %.2f ohms\n', eqRes(1));
fprintf('The equivalent resistance for loop 2 is %.2f ohms\n', eqRes(2));
fprintf('The equivalent resistance for loop 3 is %.2f ohms\n', eqRes(3));
```

```
The current in loop 1 is 3.00 amps
The current in loop 2 is 1.00 amps
The current in loop 3 is -8.00 amps

The average current is -1.33 amps

The equivalent resistance for loop 1 is -22.50 ohms
The equivalent resistance for loop 2 is -3.75 ohms
The equivalent resistance for loop 3 is 18.75 ohms
```

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