



**Department of Electrical and Electronic
Engineering**

INFE 221

Electrical Circuits

Fifth Lab Session

Multisim

DC Analysis

Student Name

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Student Number

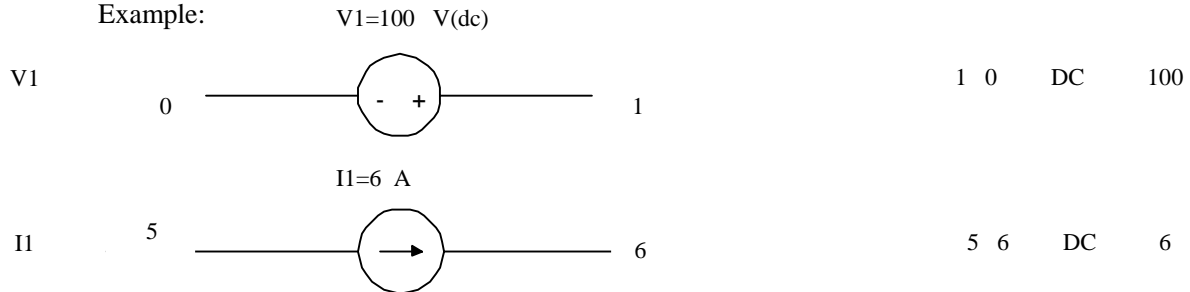
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DATA STATEMENTS FOR DC ANALYSIS

- **Independent DC Sources**

Type of Element	Element Name	Node Connections	Type of source	Value
Independent voltage source	V _{xxx}	N1 N2	DC	Value of voltage source
Independent current source	I _{xxx}	N1 N2	DC	Value of current source

Example:



- **Dependent DC Sources**

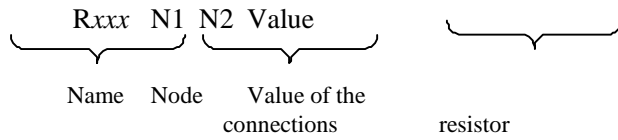
-- Voltage Controlled

Type of Element	Element Name	Node Connections	Controlling Nodes	Value
Voltage-controlled-voltage-source	E _{xxx}	N1 N2	CN1 CN2	Voltage Gain
Voltage-controlled-current-source	G _{xxx}	N1 N2	CN1 CN2	Transconductance

-- Current Controlled

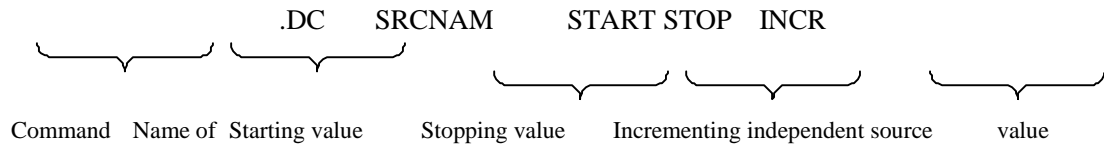
Type of Element	Element Name	Node Connections	Name of the zero-valued voltage source used to measure the controlling current	Value
Current-controlled-voltage-source	H _{xxx}	N1 N2	V _{xxx}	Transresistance
Current-controlled-current-source	F _{xxx}	N1 N2	V _{xxx}	Current Gain

- **Resistors**

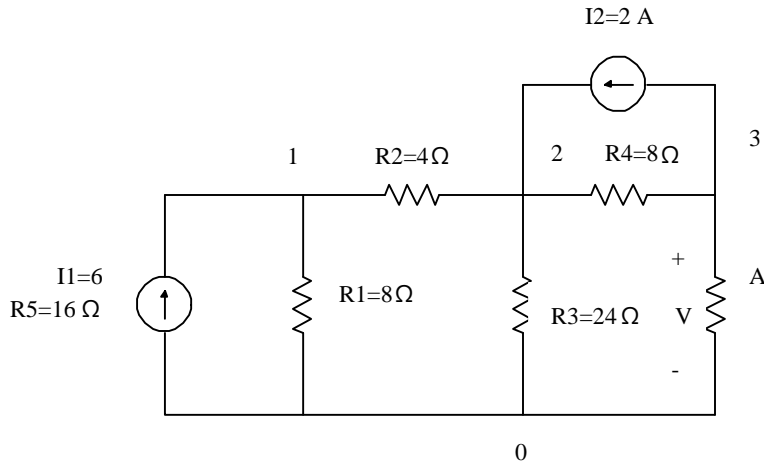


- **THE .DC CONTROL STATEMENT**

The .DC control statement allows you to increment an independent input source over a specified range of values. The format is:



Example 1: (Independent Sources) Write a program to give V.



SOLUTION OF EXAMPLE 1

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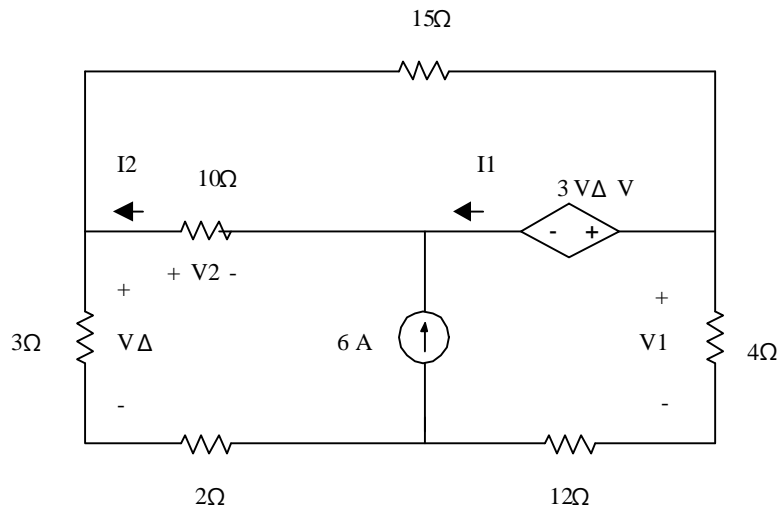
I1    0 1  DC    6
I2    3 2  DC    2
R1    1 0   8
R2    1 2   4
R3    2 0  24
R4    2 3   8
R5    3 0  16
.DC   I1   6 6  1
.PRINT DC    V(3,0)
.END

```

I_1	$V(3,0)$
$6.000E+00$	$8.000E+00$

Example 2: (Voltage-controlled-voltage-source)

Write a program to have the values of V_1 , V_Δ , I_1 and I_2 .



Example3:(Current-controlled-current-source)Write a program to give value of I_1 .

