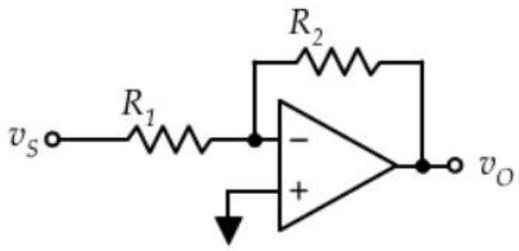
In the circuit shown below $R_2 = 17.5\ k\Omega$.

Assume that the op-amp is ideal.

Determine the value of R_1 so that the *magnitude* of closed-loop gain, $G = v_O / v_S$ is 7.



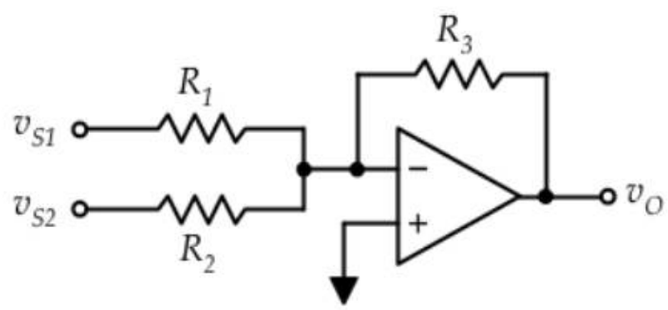
Answer

$R_1 = 2.5\ k\Omega$

In the circuit shown below $R_1 = 10\ k\Omega$, $R_2 = 8\ k\Omega$ and $R_3 = 48\ k\Omega$

Assume that the op-amp is ideal.

If $v_{S1} = 0.8\ V_{DC}$ and $v_{S2} = -0.5333\ V_{DC}$ determine the DC output voltage.



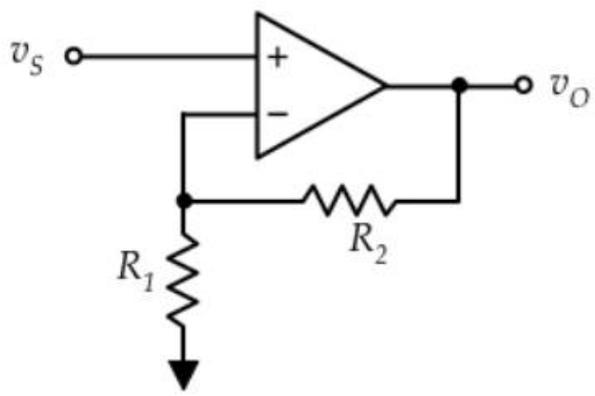
Answer

$v_O = -0.64\ V_{DC}$

In the circuit shown below $R_1 = 6\ k\Omega$ and $R_2 = 132\ k\Omega$.

Assume that the op-amp is ideal.

Determine the closed-loop gain, $G = v_O / v_S$.



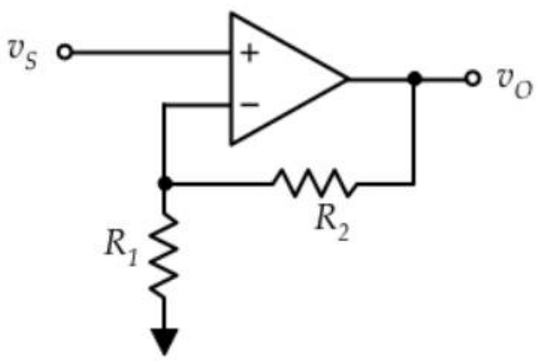
Answer

G = 23

In the circuit shown below $R_2 = 14\ k\Omega$.

Assume that the op-amp is ideal.

Determine the value of R_1 so that the closed-loop gain, $G = v_O / v_S = 8$.



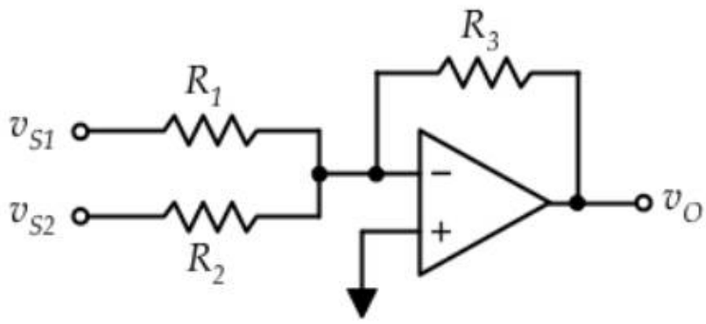
Answer

$R_1 = 2\ k\Omega$

In the circuit shown below $R_1 = 12\ k\Omega$, $R_2 = 12\ k\Omega$ and $R_3 = 72\ k\Omega$

Assume that the op-amp is ideal.

If $v_{S1} = -0.4667\ V_{DC}$ and $v_{S2} = 0.2\ V_{DC}$ determine the DC output voltage.



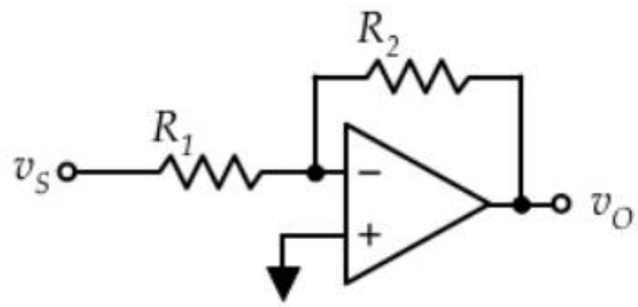
Answer

$v_O = 1.6\ V_{DC}$

In the circuit shown below $R_1 = 7.5\ k\Omega$ and $R_2 = 112.5\ k\Omega$.

Assume that the op-amp is ideal.

Determine the closed-loop gain, $G = v_O / v_S$.



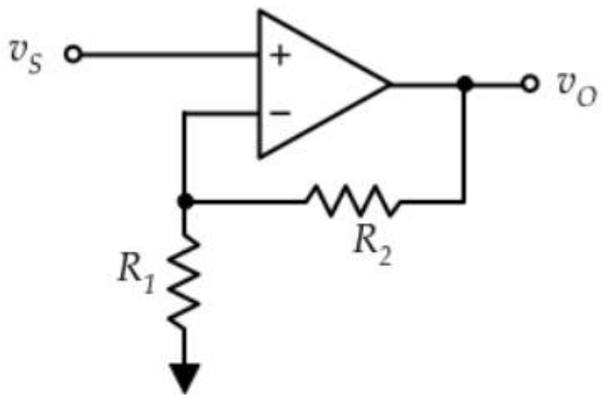
Answer

$G = -15$

In the circuit shown below $R_2 = 48\ k\Omega$.

Assume that the op-amp is ideal.

Determine the value of R_1 so that the closed-loop gain, $G = v_O / v_S = 5$.



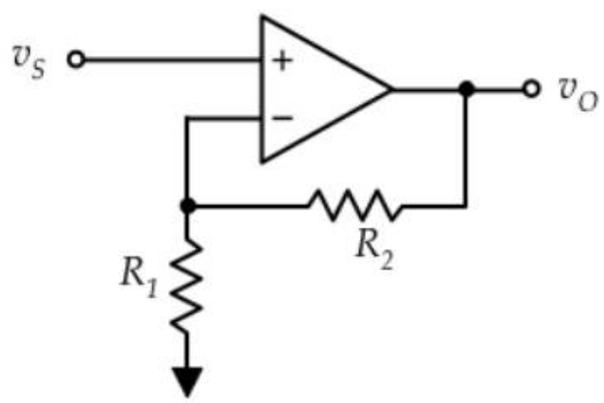
Answer

$R_1 = 12\ k\Omega$

In the circuit shown below $R_1 = 1\ k\Omega$ and $R_2 = 1\ k\Omega$.

Assume that the op-amp is ideal.

Determine the closed-loop gain, $G = v_O / v_S$.



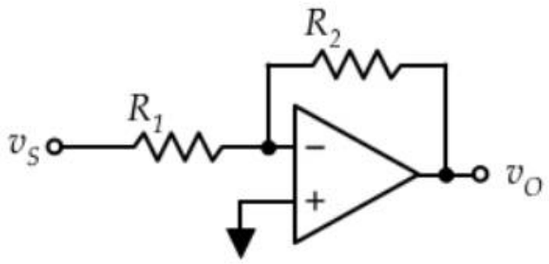
Answer

$G = 2$

In the circuit shown below $R_1 = 0.5\ k\Omega$.

Assume that the op-amp is ideal.

Determine the value of R_2 so that the *magnitude* of closed-loop gain, $G = v_O / v_S$ is 17.



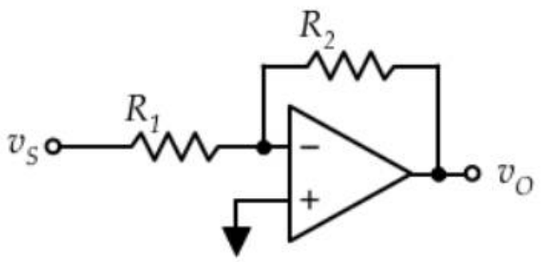
Answer

$R_2 = 8.5\ k\Omega$

In the circuit shown below $R_2 = 24\ k\Omega$.

Assume that the op-amp is ideal.

Determine the value of R_1 so that the *magnitude* of closed-loop gain, $G = v_O / v_S$ is 24.



Answer

$R_1 = 1\ k\Omega$