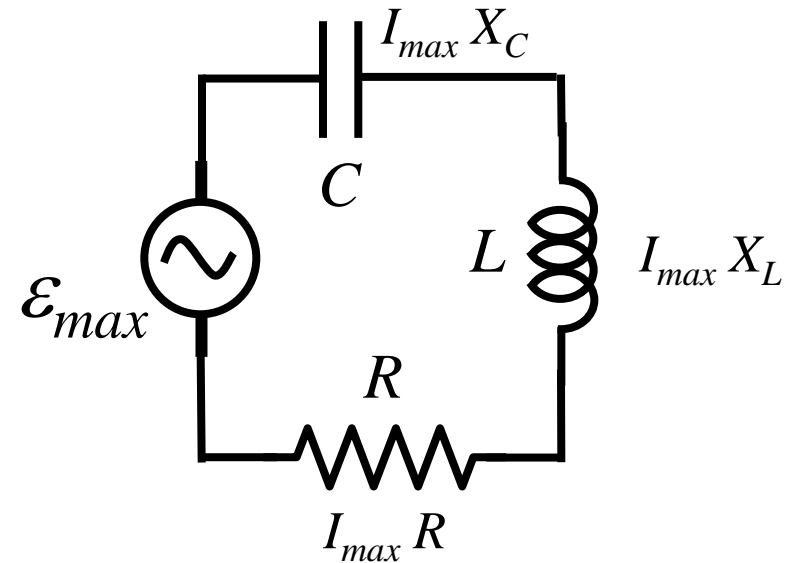


Make this Simpler



$$\mathcal{E}_{max} = I_{max} Z$$

A phasor diagram illustrating the relationship between the maximum emf \mathcal{E}_{max} and the maximum current I_{max} . The current I_{max} is represented by a green horizontal vector pointing to the right. The voltage drop across the resistor $I_{max} R$ is also a green horizontal vector pointing to the right. The voltage drop across the inductor $I_{max} X_L$ is a purple vertical vector pointing upwards. The voltage drop across the capacitor $I_{max} X_C$ is a purple vertical vector pointing downwards. The net voltage drop across the reactive components is $I_{max}(X_L - X_C)$, shown as a purple vertical vector pointing upwards. The maximum emf \mathcal{E}_{max} is represented by a black vector pointing upwards and to the right, which is the vector sum of $I_{max} R$ and $I_{max}(X_L - X_C)$.