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YOUR NAME(S): \_\_\_\_\_

**PROB:** The center frequency,  $\omega_0$ , for an *RLC* filter satisfies the following equation:

$$\omega_0 L - \frac{1}{\omega_0 C} = 0$$

The following information is given:

$f_0$  = center frequency in Hz: 500 for low-pass, 16,000 for high-pass

$\omega_0 = 2\pi f_0$  (to convert frequency in Hz to rad/s)

$L = 0.1$  H

Find the value of  $C$  for the center frequency  $f_0$ . That means you must solve the first equation on this page for  $C$ . Treat the other terms as numbers but use the symbolic names for them as you do the algebra until the last step.

$C =$  \_\_\_\_\_

Hint: You may solve the center frequency equation for  $C$  using simple algebraic steps.