

**Step-by-step Solution for Resonant Frequency Problem** – solve for the frequency ( $f_r$ ). Exam problem E5A14.


$$f_r = \frac{1}{2\pi\sqrt{LC}}$$

$$L = 50 \mu H$$

$$C = 40 pf$$

Should get answer of 3.56 MHz

Assumptions: Mode set to 2 decimal places and Eng display

Key(s) to Press	Pix	Display	Notes
Clear		Blank	Start with a blank screen
Fraction		Box over box with top box blinking	Blinking box indicates cursor position - ready to accept an entry in this box
1			1 will appear in the top box (numerator of fraction)
Navigation diamond - press down		Bottom box blinking	Blinking box indicates cursor position - ready to accept an entry in this box
2		2 will appear in the bottom box	Denominator of fraction
$\pi$		Denominator will now contain $2\pi$	
2nd, then square root	 	Denominator will now contain $2\pi$ and the radical sign. A blinking box will appear in the radical - ready to accept an entry in this box.	
50		50 will appear inside the radical sign	
EE		50E in the radical	When you press the EE key a single E will appear in the display
(-), then 6		50E-6	The (-) key is the gray "negation" key just below the 3 key. Do not use the silver minus key or you will get a syntax error when the finishing the calculation. At this point, 50 uH has been entered. (50E-6 is the same as $50 \times 10^{-6}$ for 50 microhenries)
Multiply key		50E-6*	An asterisk is the symbol for multiply
40 EE (-) 12		50E-6*40E-12	We now have the square root of 50 uH times 40 pf entered inside the radical sign. Check your entry. Display should read: $\frac{1}{2\pi\sqrt{50E-6*40E-12}}$ You may need to press the navigator left (3 times) to see it all.
Enter key		3.56E6	3.56 MHz - Right answer!