

2 Phasor Diagrams

- 2.1 What is a phasor?
- 2.2 Why use phasors?
- 2.3 How does one use one?

2.1 What is a phasor?

- Representation of a sinusoidal quantity.
- Magnitude and Phase.
- Can rotate, but relative phases remain the same.
- Constant frequency, CCW positive.

2.2 Why use phasors?

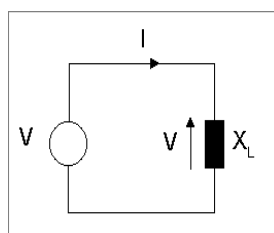
- Let $v = \sqrt{2} 240 \sin(2\pi 50t)$
 $X_L = 2.4 \Omega$

- Represent v, i

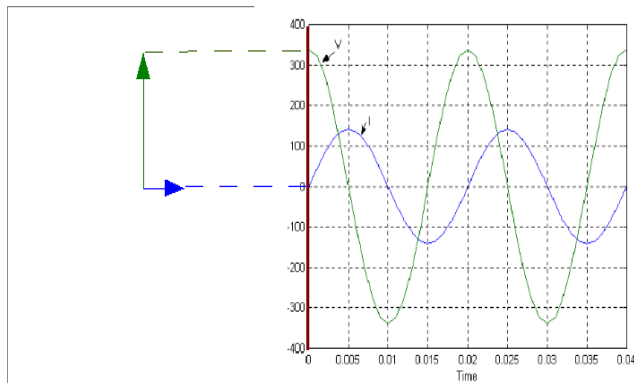
$$i = \frac{1}{L} \int v dt$$

$$i = \frac{1}{(2\pi 50 L)} \cos(2\pi 50t)$$

$$i = \sqrt{2} 100 \cos(2\pi 50t)$$



Ex contd



2.3 Using phasors

- ✎ RMS and angle
- ✎ Use *vector* arithmetic
- ✎ *CIVIL*
- ✎ Sketch gives approx. result.