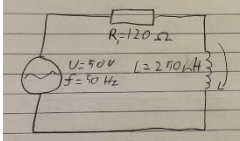
Kotitehtävä V.6 1.

Kristian Pekkonen



$\overline{X_L} = J\omega L = J \cdot 2\pi \cdot 50 \cdot 0.25$

$\overline{X_L} = 78.53\,\Omega \angle 90°$

$\overline{Z}_{kok} = \overline{X_L} + R_1$

$\overline{Z}_{kok} = 143.41\,\Omega \angle 33.2°$

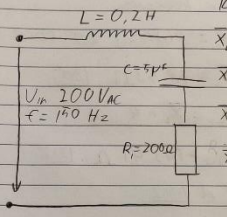
$\overline{I} = \frac{\overline{U}}{\overline{Z}} = \frac{50V}{143.41\,\Omega \angle 33.2°} = 0.348\,A \angle -33.2$

$U_L = \overline{I} \times \overline{X_L} = 0.348A \angle -33.2 \times 78.53\,\Omega \angle 90$

$U_L = 27.38\,V \angle 56.79°$

Kotitehtävä V.6 tehtävä 2

Kristian Pekkonen



$\overline{X_L} = J\omega L = J \times 2\pi \times 150 \times 0,2$

$\overline{X_L} = 188.49\,\Omega \angle 90°$

$\overline{X_C} = \frac{1}{J\omega C} = \frac{1}{J \cdot 2\pi \times 150 \times 5 \times 10^{-6}}$

$\overline{X_C} = 212.2\,\Omega \angle -90°$

$\overline{Z}_{kok} = \overline{X_L} + \overline{X_C} + R_1 = 188.49\,\Omega \angle 90 + 212.2\,\Omega \angle -90° + 200\,\Omega$

$\overline{Z}_{kok} = 201.4\,\Omega \angle -6.76°$

$\overline{I} = \frac{\overline{U}}{\overline{Z}} = \frac{200V}{201,4\,\Omega \angle -6.76°} = 0.99\,A \angle 6.76$

$U_L = \overline{I} \times \overline{X_L} = 0.99A \angle 6.76 \times 188.49\,\Omega \angle 90°$

$U_L = 187.18\,V \angle 96.76°$

$U_C = \overline{I} \times X_C = 0.99A \angle 6.76° \times 212.2\,\Omega \angle -90°$

$U_C = 210.73\,V \angle -83.23°$

$U_R = \overline{I} \times R_1 = 0,99A \angle 6.76° \times 200\,\Omega$

$U_R = 198.6\,V \angle 6.76°$

Title: Kotitehtävä v.6 1 tehtävä		
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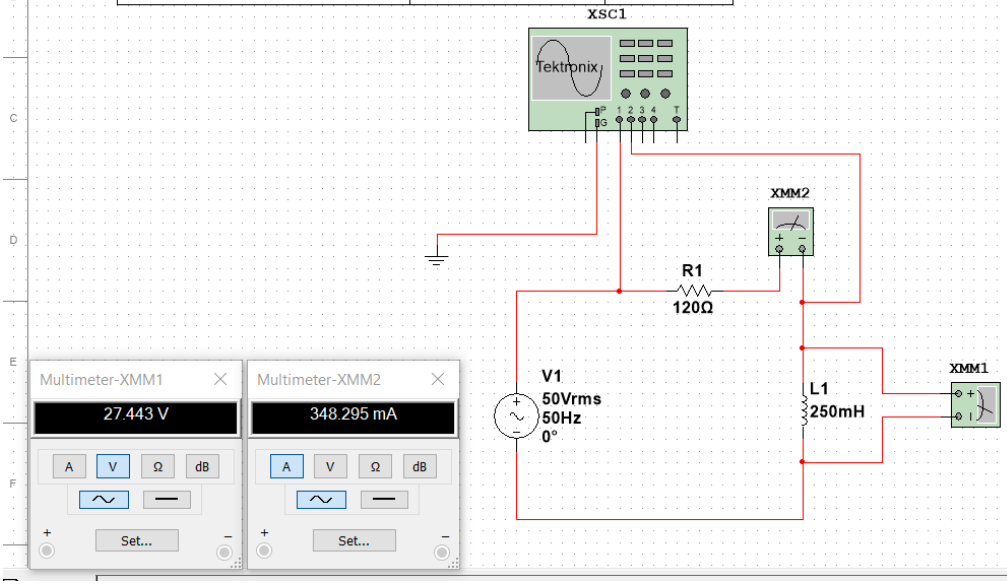

Title: Kotitehtävä v.6 2 tehtävä		
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