1. An electric motor is connected to a 240V_{rms}, 60Hz bus. It draws an RMS current of 7A. We measure the terminal voltage and current on the oscilloscope and determine that the voltage peak leads the current peak by 1.85ms.

   (a) Find the angle in degrees between the voltage and current. Hint: your result should be between 25°and 45°.

   $\phi =$ ____

   (b) Find the real power, reactive power, and apparent power going into the motor (use appropriate units for each).

   $P =$ ____

   $Q =$ ____

   $S =$ ____

   (c) Compute the power factor.

   pf = ____