1. Draw the phasors and determine an expression for the superposition of

\[ y_1 = (3.0 \text{ mm}) \sin(kx - \omega t) \quad \text{and} \quad y_4 = (7.0 \text{ mm}) \sin \left( kx - \omega t + \frac{\pi}{3} \right) \]

Verify your answer by going to the applet, "Phasor Diagrams," at http://qbx6.ltu.edu/s_schneider/physlets/main/phasor1.shtml and trying your waves above to see if your answers seem correct.

2. A wave \( y_1 = (3.0 \text{ mm}) \sin(kx + \omega t) \) is superimposed with a wave of amplitude 7.0 mm

(a) What is the amplitude of the superposition for constructive interference?

(b) What is the amplitude of the superposition for destructive interference?

(c) A wave \( y_1 = (3.0 \text{ mm}) \sin(kx + \omega t) \) is superimposed with a wave of amplitude 7.0 mm
What is the phase of the second wave if the superposition has amplitude 6.0 mm?