Quiz on Discrete-Time Frequency

A companion to the Discrete-Time Frequency demo. Use the applet with frequency selections of the form

$$\omega = (m/8)2\pi, \quad m = 0, 1, \ldots$$

to address the following questions. In some cases the answer requires mathematical manipulation of the expression for frequency.

1. Among the frequencies corresponding to $m = 0, 1, \ldots, 7$, what is the highest frequency?

2. Why is the phasor signal the same for $m = 1$ and $m = 9$?

3. Explain in mathematical terms why the real part of the phasor signal is the same for $m = 2$ and $m = 6$.

4. What is the effect of changing the sign of the frequency, that is, changing the sign of the integer m?