Multiple Choice-Test

Chapter 11.03
Fourier Transform Pair: Frequency and Time Domain

1. Given two complex numbers: $C_1 = 2 - 3i$, and $C_2 = 1 + 4i$. The product $P = C_1 \times C_2$ can be computed as
   (A) $2 + 5i$
   (B) $-10 + 5i$
   (C) $-14 + 5i$
   (D) $14 + 5i$

2. Given the complex number $C_1 = 3 + 4i$. In polar coordinates, the above complex number can be expressed as $C_1 = Ae^{i\theta}$, where A and θ is called the amplitude and phase angle of C_1, respectively. The amplitude A can be computed as
   (A) 3
   (B) 4
   (C) 5
   (D) 7

3. Given the complex number $C_1 = 3 + 4i$. In polar coordinates, the above complex number can be expressed as $C_1 = Ae^{i\theta}$, where A and θ is called the amplitude and phase angle of C_1, respectively. The phase angle θ in radians can be computed as
   (A) 0.6435
   (B) 0.9273
   (C) 2.864
   (D) 5.454

4. For the complex number $C = -3 + 4i$, the phase angle θ in radians can be computed as
   (A) 0.6435
   (B) 0.9273
   (C) 1.206
   (D) 2.2143

5. Given the function $f_{np}(t)=\delta(t-a)=\begin{cases}1, & if\ t=a\\ 0, & elsewhere\end{cases}$. The Fourier transform $\hat{F}(iw_0)$ which will transform the function from time domain to frequency domain can be computed as

   (A) $\delta(a+t)$
   (B) $e^{-i(2\pi f)a}$
   (C) 1
   (D) $\delta(t-a)$

6. Given the function $\hat{F}(iw_0)=1$. The inverse Fourier transform $f_{np}(t)$ which will transform the function from frequency domain to time domain can be computed as

   (A) e^{it}
   (B) e^{-it}
   (C) $\delta(t-0)$
   (D) $e^{-i(2\pi f)t}$