PROBLEM:

For each of the following signals, pick one of the representations below that defines *exactly* the same signal. Write your answer $x_1(t)$, $x_2(t)$, $x_3(t)$, $x_4(t)$, or $x_5(t)$, in the box next to each signal. In addition, write the complex amplitude (X_k) of the sinusoid for each casein the space provided.

ANS = $2\cos(4\pi t + 7\pi/4)$

$X_k =$

ANS = $2\cos(4\pi t + 5\pi/4)$

$X_k =$

ANS = $e^{j3\pi/4}e^{j4\pi t} + e^{-j3\pi/4}e^{-j4\pi t}$

$X_k =$

ANS = $\Re e\left\{(\sqrt{2} + j\sqrt{2})e^{j4\pi t}\right\}$

$X_k =$

ANS = $2\cos(4\pi t + 9\pi/4)$

$X_k =$

POSSIBLE ANSWERS: Some of these answers can be used <u>more than once.</u>
If one answer is used twice, another one won't be used at all.

1. $x_1(t) = \cos(4\pi t + 7\pi/4)$

2. $x_2(t) = \Re e\left\{2e^{-j7\pi/4}e^{j4\pi t}\right\}$

3. $x_3(t) = 2\cos(4\pi t - 5\pi/4)$

4. $x_4(t) = \Re e\left\{(-\sqrt{2} - j\sqrt{2})e^{j4\pi t}\right\}$

5. $x_5(t) = e^{j7\pi/4}e^{j4\pi t} + e^{-j7\pi/4}e^{-j4\pi t}$