Name_______________________________ CM____________

Quiz 1
(no calculators allowed)

1) If $z = \dfrac{2+j}{3-2j}$, the **magnitude** of z, $|z|$ is

a) $\sqrt{\dfrac{3}{5}}$ b) $\sqrt{\dfrac{5}{13}}$ c) $\dfrac{3}{5}$ d) none of these

2) If, $z = \dfrac{1}{1-j}$ the **phase** of z, $\angle z$, is

a) 45^o b) -45^o c) 90^o d) -90^o e) none of these

3) If $z = \dfrac{j}{1+j}$, the **phase** of z, $\angle z$, is

a) 45^o b) -45^o c) 135^o d) -135^o e) none of these

4) If $z = \dfrac{2-j}{3+2j}$, the **complex conjugate** of z, z^*, is

a) $z = \dfrac{2+j}{3-2j}$ b) $z = \dfrac{2+j}{3+2j}$ c) $z = \dfrac{2-j}{3+2j}$ d) none of these

5) If $z = \dfrac{1}{1-j\omega} e^{j\theta}$, the **complex conjugate** of z, z^*, is

a) $\dfrac{1}{1+j\omega} e^{j\theta}$ b) $\dfrac{1}{1+j\omega} e^{-j\theta}$ c) $\dfrac{1}{1-j\omega} e^{-j\theta}$ d) none of these

6) If $z = \dfrac{1}{1+j\omega} e^{j\theta}$, the **magnitude** of z, $|z|$, is

a) $\dfrac{1}{\sqrt{1+\omega^2}} e^{j\theta}$ b) $\dfrac{1}{\sqrt{1-\omega^2}} e^{j\theta}$ c) $\dfrac{1}{\sqrt{1-\omega^2}}$ d) $\dfrac{1}{\sqrt{1+\omega^2}}$ e) none of these

7) We can write $e^{jk\pi}$ as a) 1 b) $(-1)^k$ c) 0

8) We can write j in polar form as a) $e^{j\pi}$ b) $e^{-j\pi}$ c) $e^{j\frac{\pi}{2}}$ d) $e^{-j\frac{\pi}{2}}$

9) We can write -1 in polar form as a) $e^{j\pi}$ b) $e^{-j\pi}$ c) $e^{j\frac{\pi}{2}}$ d) $e^{-j\frac{\pi}{2}}$

10) If we made the variable substitution $\sigma = \dfrac{\lambda}{2}$ in the integral $\int_2^6 x\left(\dfrac{\lambda}{2}\right)d\lambda$, the new integral is

a) $\dfrac{1}{2}\int_2^6 x(\sigma)d\sigma$ b) $2\int_2^6 x(\sigma)d\sigma$ c) $\dfrac{1}{2}\int_1^3 x(\sigma)d\sigma$ d) $2\int_1^3 x(\sigma)d\sigma$ e) none of these

11) If we made the variable substitution $\sigma = \lambda - 1$ in the integral $\int_{-\infty}^{t} e^{\lambda} x(\lambda - 1)d\lambda$, the new integral is

a) $\int_{-\infty}^{t-1} e^{\sigma+1}x(\sigma)d\sigma$ b) $\int_{-\infty}^{t} e^{\sigma+1}x(\sigma)d\sigma$ c) $\int_{-\infty}^{t} e^{\sigma}x(\sigma)d\sigma$ d) $2\int_{-\infty}^{t-1} e^{\sigma}x(\sigma)d\sigma$ e) none of these

12) If we made the variable substitution $\sigma = 1 - 2\lambda$ in the integral $\int_0^5 x(1-2\lambda)d\lambda$, the new integral is

a) $\int_0^5 x(\sigma)d\sigma$ b) $\dfrac{-1}{2}\int_0^5 x(\sigma)d\sigma$ c) $\dfrac{1}{2}\int_{-9}^{1} x(\sigma)d\sigma$ d) $\int_{-9}^{1} x(\sigma)d\sigma$ e) none of these