Q8   Ref. $= 1\cos(\omega t)$

1) a) $-20\cos(4t + 135°) = -20\cos(4t - 45°)$
   $$= \boxed{-20 \angle{-45°}}$$

b) $8\sin(20t + 30°) = 8\cos(20t + 30 - 90)$ $\sin(\theta - 90)$
   $$= 8\cos(20t - 60)$$ $= \cos\theta$

   $\Rightarrow$ phasor: $\boxed{8 \angle{-60°}}$

c) $20\cos 2t + 15\sin 2t$ $-\sin(90 - \theta) = \cos\theta$
   $20 \angle{0} + 15 \angle{-90°}$

   $$= \boxed{25 \angle{-36.86}}$$

2) a) $V_1 = 60 \underline{/15°} V, \omega = 1$

$$V_1 = \boxed{60 \cos(t + 15°)}$$

b) $V_2 = 6 + j8 V, \quad \omega = 40$

$\Rightarrow V_2 = 10 \underline{/53.13°}$

$V_2 = \boxed{10 \cos(40t + 53.13°)}$

c) $I_1 = 2.8 e^{-j\pi/3} A, \quad \omega = 377$ $\qquad \boxed{re^{j\theta}}$

$$\boxed{I_1 = 2.8 \cos(377t - 60°)}$$