

Chapter 9, Solution 16.

$$\begin{aligned} \text{(a)} \quad -20 \cos(4t + 135^\circ) &= 20 \cos(4t + 135^\circ - 180^\circ) \\ &= 20 \cos(4t - 45^\circ) \end{aligned}$$

The phasor form is **$20\angle-45^\circ$**

$$\begin{aligned} \text{(b)} \quad 8 \sin(20t + 30^\circ) &= 8 \cos(20t + 30^\circ - 90^\circ) \\ &= 8 \cos(20t - 60^\circ) \end{aligned}$$

The phasor form is **$8\angle-60^\circ$**

$$\begin{aligned} \text{(c)} \quad 20 \cos(2t) + 15 \sin(2t) &= 20 \cos(2t) + 15 \cos(2t - 90^\circ) \\ \text{The phasor form is } 20\angle 0^\circ + 15\angle -90^\circ &= 20 - j15 = \mathbf{25\angle-36.87^\circ} \end{aligned}$$