Chapter 9, Solution 8.

(a) $\dfrac{60\angle 45^\circ}{7.5 - j10} + j2 = \dfrac{60\angle 45^\circ}{12.5\angle -53.13^\circ} + j2$

$= 4.8\angle 98.13^\circ + j2 = -0.6788 + j4.752 + j2$

$= \mathbf{-0.6788 + j6.752}$

(b) $(6 - j8)(4 + j2) = 24 - j32 + j12 + 16 = 40 - j20 = 44.72\angle -26.57^\circ$

$$\frac{32\angle -20^\circ}{(6 - j8)(4 + j2)} + \frac{20}{-10 + j24} = \frac{32\angle -20^\circ}{44.72\angle -26.57^\circ} + \frac{20}{26\angle 112.62^\circ}$$

$= 0.7156\angle 6.57^\circ + 0.7692\angle -112.62^\circ = 0.7109 + j0.08188 - 0.2958 - j0.71$

$= \mathbf{0.4151 - j0.6281}$

(c) $20 + (16\angle -50^\circ)(13\angle 67.38^\circ) = 20 + 208\angle 17.38^\circ = 20 + 198.5 + j62.13$

$= \mathbf{218.5 + j62.13}$