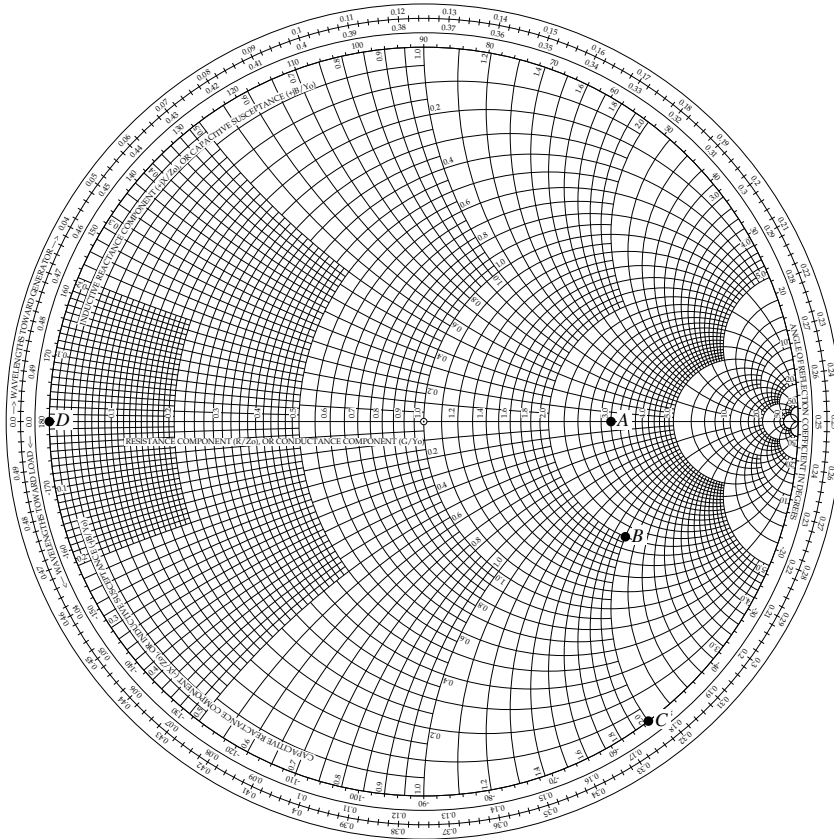


**2.47** Use the Smith chart to find the reflection coefficient corresponding to a load impedance of

- (a)  $Z_L = 3Z_0$
- (b)  $Z_L = (2 - j2)Z_0$
- (c)  $Z_L = -j2Z_0$
- (d)  $Z_L = 0$  (short circuit)

**Solution:** Refer to Fig. P2.47.

- (a) Point *A* is  $z_L = 3 + j0$ .  $\Gamma = 0.5 \exp 0^\circ$
- (b) Point *B* is  $z_L = 2 - j2$ .  $\Gamma = 0.62 \exp -29.7^\circ$
- (c) Point *C* is  $z_L = 0 - j2$ .  $\Gamma = 1.0 \exp -53.1^\circ$
- (d) Point *D* is  $z_L = 0 + j0$ .  $\Gamma = 1.0 \exp 180.0^\circ$



**Figure P2.47:** Solution of Problem 2.47.