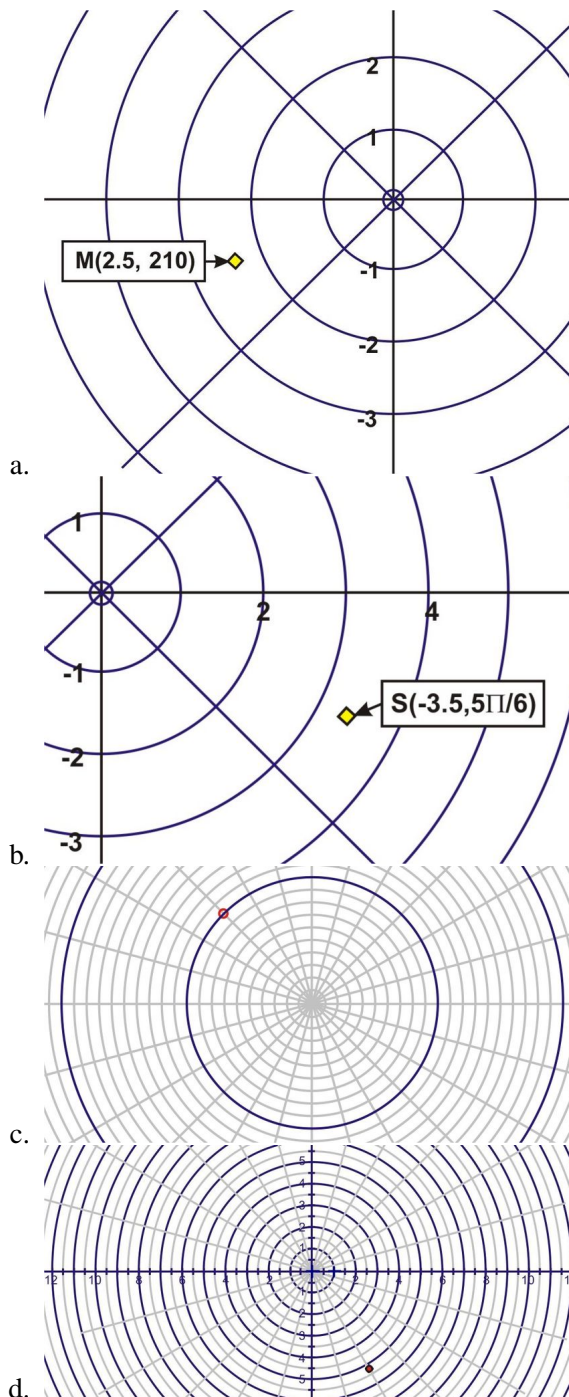


6.1 Polar Coordinates

1. Answers:



2.

$\left(-4, \frac{\pi}{4}\right)$	all positive \rightarrow	$\left(4, \frac{5\pi}{4}\right)$
	both negative \rightarrow	$\left(-4, \frac{-7\pi}{4}\right)$
	negative angle \rightarrow	$\left(4, \frac{-3\pi}{4}\right)$

3.

$(2, 120^\circ)$	negative angle only \rightarrow	$(2, -240^\circ)$
	negative radius only \rightarrow	$(-2, 300^\circ)$
	both negative \rightarrow	$(-2, -60^\circ)$

4. Use $P_1P_2 = \sqrt{r_1^2 + r_2^2 - 2r_1r_2 \cos(\theta_2 - \theta_1)}$.

a.

$$P_1P_2 = \sqrt{1^2 + 6^2 - 2(1)(6) \cos(135^\circ - 30^\circ)}$$

$$P_1P_2 \approx 6.33 \text{ units}$$

b.

$$P_1P_2 = \sqrt{2^2 + 9^2 - 2(2)(9) \cos 150^\circ}$$

$$= 10.78$$

c.

$$P_1P_2 = \sqrt{3^2 + 10^2 - 2(3)(10) \cos(322^\circ - 272^\circ)}$$

$$= 8.39$$

d.

$$P_1P_2 = \sqrt{5^2 + 16^2 - 2(5)(16) \cos(200^\circ - 25^\circ)}$$

$$= 20.99$$