Notes:_____

3. How is a complex number converted to polar form?   **4.** How do we find the product of two complex numbers?

For the following exercises, convert the complex number from polar to rectangular form.

17. $z = 7\text{cis}\left(\dfrac{\pi}{6}\right)$

18. $z = 2\text{cis}\left(\dfrac{\pi}{3}\right)$

19. $z = 4\text{cis}\left(\dfrac{7\pi}{6}\right)$

20. $z = 7\text{cis}(25°)$

21. $z = 3\text{cis}(240°)$

22. $z = \sqrt{2}\,\text{cis}(100°)$

For the following exercises, find $z_1 z_2$ in polar form.

23. $z_1 = 2\sqrt{3}\,\text{cis}(116°);\ z_2 = 2\text{cis}(82°)$

24. $z_1 = \sqrt{2}\,\text{cis}(205°);\ z_2 = 2\sqrt{2}\,\text{cis}(118°)$

25. $z_1 = 3\text{cis}(120°);\ z_2 = \dfrac{1}{4}\text{cis}(60°)$

26. $z_1 = 3\text{cis}\left(\dfrac{\pi}{4}\right);\ z_2 = 5\text{cis}\left(\dfrac{\pi}{6}\right)$

For the following exercises, find $\dfrac{z_1}{z_2}$ in polar form.

29. $z_1 = 21\text{cis}(135°)$; $z_2 = 3\text{cis}(65°)$

30. $z_1 = \sqrt{2}\text{cis}(90°)$; $z_2 = 2\text{cis}(60°)$

31. $z_1 = 15\text{cis}(120°)$; $z_2 = 3\text{cis}(40°)$

32. $z_1 = 6\text{cis}\left(\dfrac{\pi}{3}\right)$; $z_2 = 2\text{cis}\left(\dfrac{\pi}{4}\right)$

33. $z_1 = 5\sqrt{2}\text{cis}(\pi)$; $z_2 = \sqrt{2}\text{cis}\left(\dfrac{2\pi}{3}\right)$

34. $z_1 = 2\text{cis}\left(\dfrac{3\pi}{5}\right)$; $z_2 = 3\text{cis}\left(\dfrac{\pi}{4}\right)$

For the following exercises, find the powers of each complex number in polar form.

35. Find z^3 when $z = 5\text{cis}(45°)$.

36. Find z^4 when $z = 2\text{cis}(70°)$.

37. Find z^2 when $z = 3\text{cis}(120°)$.

38. Find z^2 when $z = 4\text{cis}\left(\dfrac{\pi}{4}\right)$.