

## Homework #56

## Answers

From Houghton-Mifflin

3<sup>rd</sup> Edition

p475:

$$18) (5/2)(\sqrt{3} - i) \quad \sqrt{(25/4)(3) + (25/4)} = \sqrt{100/4} = 5$$

$$\tan \theta = 1/\sqrt{3}; \theta = 330^\circ \quad z = 5(\cos 330^\circ + i \sin 330^\circ)$$

$$20) -6i \quad r = \sqrt{0 + 36} = 6 \quad \tan \theta = -6/0 = \text{und.}; \theta = 270^\circ$$

$$z = 6(\cos 270^\circ + i \sin 270^\circ)$$

$$21) -7 + 4i \quad r = \sqrt{49 + 16} = \sqrt{65}$$

$$\tan \theta = -4/7; \theta = 180^\circ - 29.7^\circ = 150.3^\circ$$

$$z = \sqrt{65}(\cos 150.3^\circ + i \sin 150.3^\circ)$$

$$24) 4 \quad r = \sqrt{16 + 0} = 4 \quad \tan \theta = 0/4 = 0; \theta = 0^\circ$$

$$z = 4(\cos 0^\circ + i \sin 0^\circ)$$

$$35) (3/2)(\cos 330^\circ + i \sin 330^\circ)$$

$$z = (3/2)(\sqrt{3}/2) + (3/2)(-1/2)i = (3\sqrt{3})/4 - 3i/4$$

$$36) (3/4)(\cos 315^\circ + i \sin 315^\circ)$$

$$z = (3/4)(\sqrt{2}/2) + (3/4)(-\sqrt{2}/2)i = (3\sqrt{2})/8 - (3i\sqrt{2})/8$$

$$37) 3.75(\cos 3\pi/4 + i \sin 3\pi/4)$$

$$z = 3.75(-\sqrt{2}/2) + 3.75(\sqrt{2}/2)i = -1.875\sqrt{2} + 1.875i\sqrt{2}$$

$$38) 8(\cos 5\pi/6 + i \sin 5\pi/6)$$

$$z = 8(-\sqrt{3}/2) + 8(1/2)i = -4\sqrt{3} + 4i$$