

Name: _____

Trigonometric Form for Complex Numbers

Exercise 1: Write the complex numbers in trigonometric form

1) $z = -8$

2) $z = 12i$

3) $z = -1 + \sqrt{3}i$

4) $z = 1 + i$

5) $z = -1 - i$

6) $z = -i + 1$

7) $z = \sqrt{2} + \sqrt{2}i$

8) $z = i - 1$

9) $z = -1 - 2i$

10) $z = 1 + \sqrt{3}i$

11) $z = -\sqrt{3} + i$

12) $z = -\sqrt{3} - i$

Exercise 2: Write the complex number in standard form $a + bi$

1) $z = \sqrt{8} \left(\cos\left(\frac{\pi}{3}\right) + \sin\left(\frac{\pi}{3}\right) \right)$

2) $z = \sqrt{5} \left(\cos\left(\frac{2\pi}{3}\right) + \sin\left(\frac{2\pi}{3}\right) \right)$

3) $z = \sqrt{2} (\cos(\pi) + \sin(\pi))$

4) $z = \sqrt{13} (\cos(-\pi) + \sin(-\pi))$

5) $z = 9 \left(\cos\left(\frac{5\pi}{4}\right) + \sin\left(\frac{5\pi}{4}\right) \right)$

6) $z = -3 \left(\cos\left(\frac{\pi}{2}\right) + \sin\left(\frac{\pi}{2}\right) \right)$

7) $z = \sqrt{10} \left(\cos\left(\frac{7\pi}{6}\right) + \sin\left(\frac{7\pi}{6}\right) \right)$

8) $z = 7 \left(\cos\left(\frac{\pi}{2}\right) + \sin\left(\frac{\pi}{2}\right) \right)$

9) $z = \frac{1}{2} \left(\cos\left(\frac{5\pi}{6}\right) + \sin\left(\frac{5\pi}{6}\right) \right)$

10) $z = \sqrt{2} \left(\cos\left(\frac{\pi}{4}\right) + \sin\left(\frac{\pi}{4}\right) \right)$