**Find the absolute value.**

1. |3 - 4i| 2. |-6 - 7i| 3. |8i| 4. |i500|

**Represent the complex number geometrically.**

5. 4+2i 6. 2i(2 + 3i) 7. (1 + i)2



**Express the complex number in trigonometric form with 0 ≤ θ ≤ 2π.**

8. 1 - i 9. -4 + 4i 10. 2 + 2i

11. -4 - 4i 12. -20i 13. 12

**Express in the form a + bi, where a and b are real numbers.**

14. 4(cos + i sin ) 15. 6(cos + i sin ) 16. 5(cos π + i sin π)

17. cis (tan-1 ) 18. cis [tan-1 (-)] 19. cis (tan-1 3)

**Use trigonometric forms to find z1z2 and z1/z2.**

20. z1 = -1 + i, z2 = 1 + i

21. z1 = -2 - 2 i, z2 = 5i

The trigonometric form of complex numbers is often used by electrical engineers to describe the current I, voltage V, and impedance Z in electrical circuits with alternating current. Impedance is the opposition to the flow of current in a circuit. The relationship among these three quantities is **I = V/Z**. Approximate the unknown quantity, and express the answer in rectangular form to two decimal places.

22. (Finding voltage) I = 10 cis 35°, Z = 3 cis 20°

23. (Finding impedance) I = 8 cis 5°, V = 115 cis 45°