Chapter 9 test review

1. Answers vary: sample: [10, 4π/3]
2. (
3. Answers vary; sample: [6, 7π/4]
4. 14 – 3i
5. 23/34 + 61/34i
6. -46/25 – 3/25i
7. Answers vary. Sample: [100000, 20π/3]
8. -2 with mult. 3, 2 (simple), 2i (simple), -2i (simple)
9. 0 (mult 2), 2 (mult 2), -2 (mult 2),
10. Let z = a + bi where a and b are real numbers. Then, z bar = a – bi. So, z \* z bar = (a + bi) (a – bi) = a2 – abi +abi – b2i2 = a2 + b2. Since a and b are real numbers a2 + b2 is a real number. So, for all complex numbers, the product of the number and its conjugate is a real number.
11. \_
12. P(x) has real coefficients, so the complex conjugates theorem applies. Therefore, this function would have to be degree 5, not degree 3.
13. -3 + 4i
14. No, Q does not preserve distance because it includes a size change of mag. 2.
15. Distance formula – let p(z) = (a + 5) + (-b -2)I and p(w) = (c+5) + (-d -2)I
16. .740, .575, .635, .612, .620, .617
17. .04, .9216, .0061, .9877, .0002, .9999
18. Yes, .618
19. No, it appears to alternate between two values so it will never converge
20. F(x) = x + .15 (72 – x) with x0 = 0
21. 0, 14.8, 26.64, 36.11, 43.69, 49.75
22. About 90 minutes
23. F(x) = x + .10(84 – x)
24. 72, 73.68, 75.16, 76.46, 77.60, 78.61
25. 78.63˚F
26. \_
27. [4/3, π/4], [16/9, π/2], [64/27, 3 π/4], [256/81, π]
28. \_
29. Farther