Graph the complex number. Then find its absolute value.

1. $2 - 6i$

Imag

Real

Absolute value_____

2. $-1 - 3i$

Imag

Real
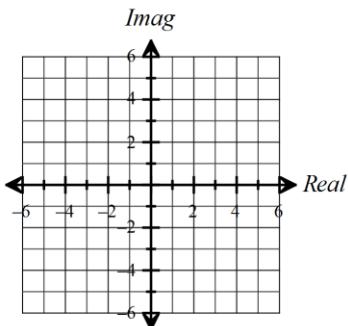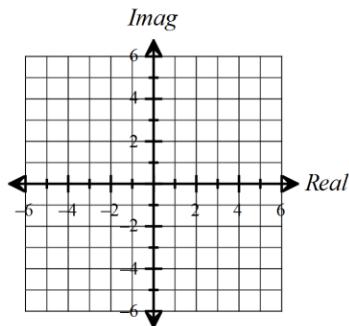
Absolute value_____

3. $6i$

Imag

Real

Absolute value_____

4. -4

Imag

Real
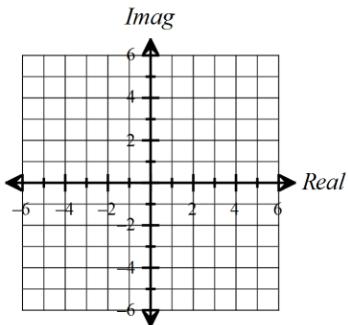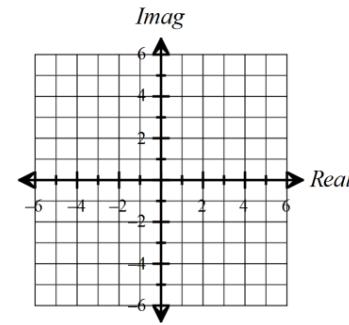
Absolute value_____

Write the complex number in trigonometric form, using degree measure for the argument.

5. $-\sqrt{3} + i$

6. $4 - 4i$

7. 8

8. $3 + 4i$

Write the complex number in the form $a + bi$.

9. $\sqrt{2}(\cos 45° + i \sin 45°)$

10. $3(\cos 90° + i \sin 90°)$

11. $\sqrt{3}\left(\cos\frac{\pi}{3} + i \sin\frac{\pi}{3}\right)$

12. $2\left(\cos\frac{7\pi}{6} + i \sin\frac{7\pi}{6}\right)$

Perform the indicated operation. Write the answer in the form of $a + bi$. Round answers to the nearest hundredth if necessary.

13. $2(\cos 150° + i \sin 150°) \cdot 3(\cos 300° + i \sin 300°)$

14. $5\left(\cos\frac{\pi}{4} + i \sin\frac{\pi}{4}\right) \cdot 3(\cos \pi + i \sin \pi)$

15. $\dfrac{4\left(\cos\frac{\pi}{3}+i \sin\frac{\pi}{3}\right)}{2\left(\cos\frac{\pi}{6}+i \sin\frac{\pi}{6}\right)}$

16. $\dfrac{3(\cos 1800°+i \sin 1800°)}{6(\cos 360°+i \sin 360°)}$

17. $\sqrt{2}(\cos 118° + i \sin 118°) \cdot \frac{1}{2}(\cos(-19°) + i \sin(-19°))$

18. $\dfrac{2\left(\cos\frac{13\pi}{6}+i\sin\frac{13\pi}{6}\right)}{3\left(\cos\frac{\pi}{3}+i\sin\frac{\pi}{3}\right)}$

19. $\sqrt{3}(\cos 10° + i \sin 10°) \cdot \sqrt{2}(\cos 20° + i \sin 20°)$

20. $\dfrac{4.1(\cos 36.7°+i\sin 36.7°)}{8.2(\cos 84.2°+i\sin 84.2°)}$

Find the product for each pair of complex numbers, using trigonometric form. Write the answer in the form of $a + bi$. Round answers to the nearest hundredth if necessary.

21. $z_1 = 4 + 4i,\ z_2 = -5 - 5i$

22. $z_1 = 3 + 4i,\ z_2 = -5 - 2i$

Find the quotient for each pair of complex numbers, using trigonometric form. Write the answer in the form of $a + bi$. Round answers to the nearest hundredth if necessary.

23. $z_1 = 2 - 6i, \; z_2 = -3 - 2i$

24. $z_1 = 2 - 3i, \; z_2 = 1 - \sqrt{3}i$

Find the product of the given complex number and its complex conjugate in trigonometric form. Show work!

25. $3\left(\cos\frac{\pi}{6} + i \sin\frac{\pi}{6}\right)$

26. $2(\cos 7° + i \sin 7°)$

27. $\sqrt{2}\left(\cos\frac{\pi}{4} + i \sin\frac{\pi}{4}\right)$

28. $5(\cos 313° + i \sin 313°)$

Review.

Identify the zeros of the function and the x-intercepts of its graph. Write the polynomial in standard form. Show work!

29. $f(x) = (x - 1)(x + 2i)(x - 2i)$

zeros: _____

x-intercept(s): _____

standard form: _____