APPC Lesson 8.2 Homework

Name _____

1. On the complex plane where the horizontal axis is the real axis and the vertical axis is the imaginary axis, an intercept on the horizontal axis represents

   A) a real number

   B) a purely imaginary number

   C) a number with a positive real and imaginary component

   D) the number zero

2. A complex number z has polar coordinates $\left(5, -\frac{\pi}{4}\right)$.

   a. What is the real component of z ?

   b. What is the imaginary component of z ?

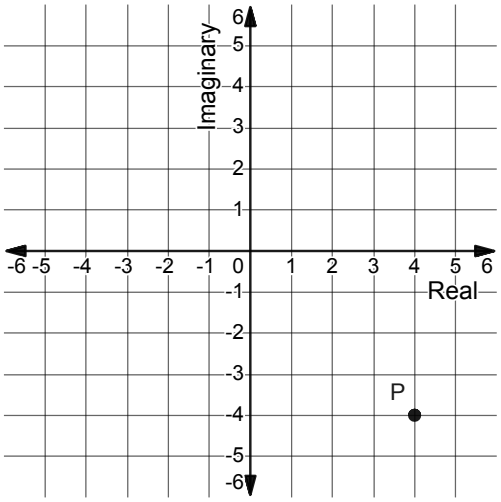
3. Write the complex number $\left(14\cos\left(\frac{5\pi}{3}\right)\right) + i\left(14\sin\left(\frac{5\pi}{3}\right)\right)$ in rectangular form.

4. Write the complex number $-6 - 5i$ in polar form.

5. A complex number is represented by point P on the complex plane.

a. Express the complex number in rectangular form.

b. Express the complex number in polar form.



6. Felipe says that there are infinitely many complex numbers that can be represented by the point with polar coordinates $\left(12, \frac{\pi}{3}\right)$ since $\frac{\pi}{3}$ has infinitely many coterminal angles. Do you agree or disagree? Explain.

7. The complex numbers given by $4\cos\left(\frac{7\pi}{6}\right) + i\left(4\sin\left(\frac{7\pi}{6}\right)\right)$ and $5 - 2i$ are both graphed in the complex plane. Find the distance between the two points. Give an exact answer.

8. A, B, C, and D represent complex numbers. Graph each number on the complex plane.

a. $A = 5 - 2i$

b. $B = -3 + i$

c. $C = 2.5$

d. $D = -4i$