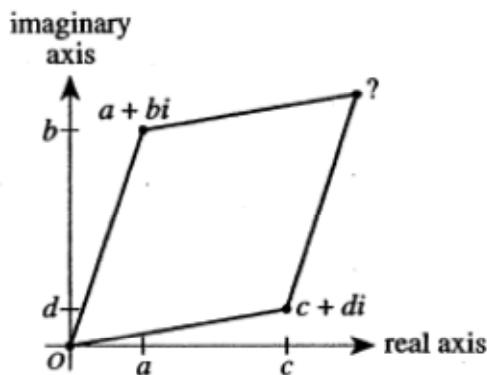


College Algebra – Complex Numbers

13. Which of the following numbers is NOT a real number?

- A. $\sqrt{25}$
- B. $\sqrt{27}$
- C. $-\frac{2}{\sqrt{5}}$
- D. $-\sqrt{25}$
- E. $-\sqrt{-25}$

60. In the complex plane, the horizontal axis is called the *real axis* and the vertical axis is called the *imaginary axis*. The complex number $a + bi$ graphed in the complex plane is comparable to the point (a,b) graphed in the standard (x,y) coordinate plane. In the complex plane below, the complex numbers $a + bi$, $c + di$, and $0 + 0i$ (the origin) are the vertices of a parallelogram. What complex number is the fourth vertex?



- F. $(a + c) + (b + d)i$
- G. $(a - c) + (b - d)i$
- H. $(c - a) + (d - b)i$
- J. $(ac - bd) + (ad + bc)i$
- K. $(ac) + (bd)i$

46. For $i^2 = -1$, $(4 + i)^2 = ?$

- F. 15
- G. 17
- H. $15 + 4i$
- J. $15 + 8i$
- K. $16 + 4i$

51. The imaginary number, i , is defined such that $i^2 = -1$.
What does $i + i^2 + i^3 + \dots + i^{49}$ equal?

A. i
B. $-i$
C. -1
D. 0
E. 1

27. For the complex number i such that $i^2 = -1$, what is the value of $i^4 + 2i^2$?

A. -2
B. -1
C. 0
D. 1
E. 2

41. For the complex number i and an integer x , which of the following is a possible value of i^x ?

A. 0
B. 1
C. 2
D. 3
E. 4

48. In the complex numbers, where $i^2 = -1$,

$$\frac{1}{1+i} \cdot \frac{1-i}{1-i} = ?$$

F. $i - 1$

G. $1 + i$

H. $1 - i$

J. $\frac{1-i}{2}$

K. $\frac{1+i}{2}$