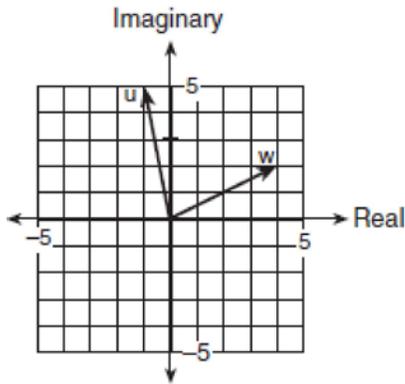


**N.CN.B.5: Graphing Complex Numbers**

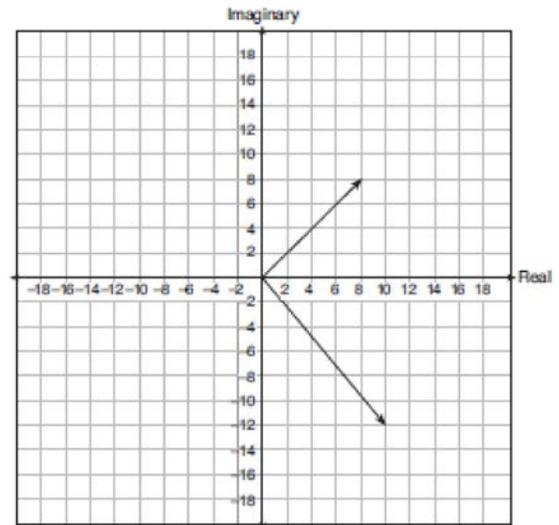
- 1 Two complex numbers are graphed below.



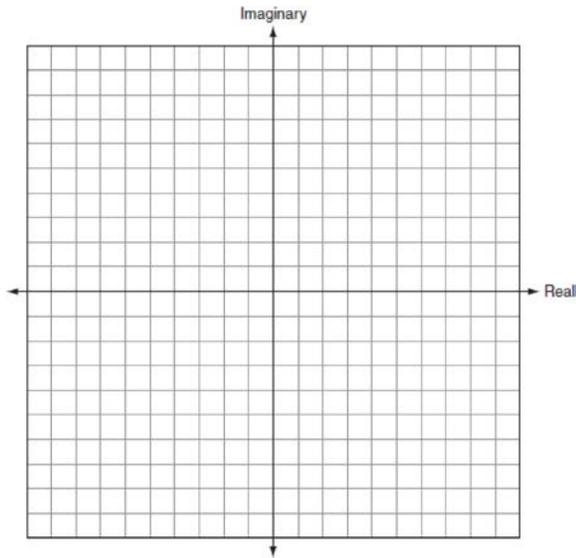
What is the sum of  $w$  and  $u$ , expressed in standard complex number form?

- 1)  $7 + 3i$
  - 2)  $3 + 7i$
  - 3)  $5 + 7i$
  - 4)  $-5 + 3i$
- 2 When the sum of  $-4 + 8i$  and  $2 - 9i$  is graphed, in which quadrant does it lie?
- 1) I
  - 2) II
  - 3) III
  - 4) IV
- 3 If  $z_1 = -3 + 2i$  and  $z_2 = 4 - 3i$ , in which quadrant does the graph of  $(z_2 - z_1)$  lie?
- 1) I
  - 2) II
  - 3) III
  - 4) IV

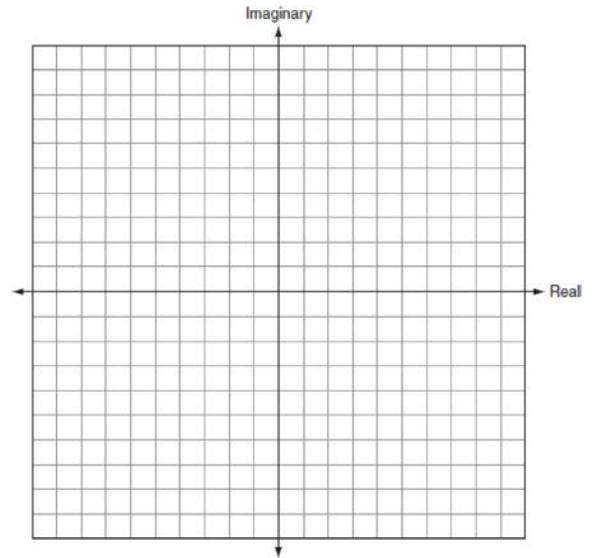
- 4 On a graph, if point  $A$  represents  $2 - 3i$  and point  $B$  represents  $-2 - 5i$ , which quadrant contains  $3A - 2B$ ?
- 1) I
  - 2) II
  - 3) III
  - 4) IV
- 5 The graph of the product of  $(4 + 3i)$  and  $(2 - 3i)$  lies in which quadrant?
- 1) I
  - 2) II
  - 3) III
  - 4) IV
- 6 On a stamp honoring the German mathematician Carl Gauss, several complex numbers appear. The accompanying graph shows two of these numbers. Express the sum of these numbers in  $a + bi$  form.



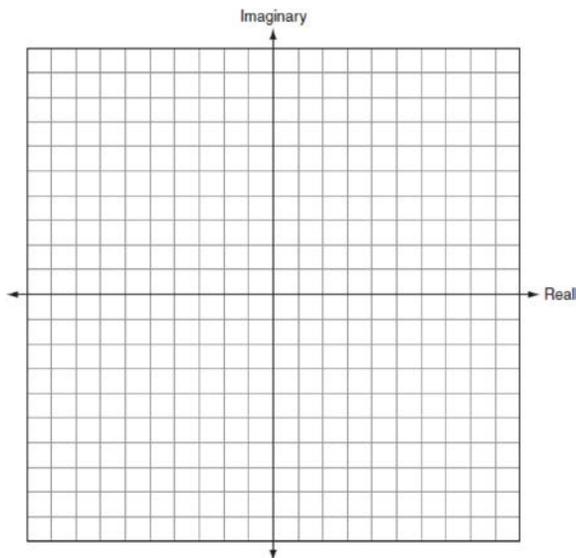
- 7 Find the sum of  $-2 + 3i$  and  $-1 - 2i$ . Graph the resultant on the accompanying set of axes.



- 9 Given the complex numbers  $z_1 = 3 + 2i$  and  $z_2 = -5 + 5i$ . Find  $z_1 - z_2$  and graph the result on the accompanying set of axes.



- 8 On the accompanying set of axes, graphically represent the sum of  $3 + 4i$  and  $-1 + 2i$ .



### N.CN.B.5: Graphing Complex Numbers Answer Section

1 ANS: 2

$$w = 4 + 2i \quad u = -1 + 5i. \quad (4 + 2i) + (-1 + 5i) = 3 + 7i$$

REF: 080512b

2 ANS: 3

$$-4 + 8i + 2 - 9i = -2 - i$$

REF: 060906b

3 ANS: 4

$$4 - 3i - (-3 + 2i) = 7 - 5i$$

REF: 010916b

4 ANS: 1

$$3(2 - 3i) - 2(-2 - 5i) = 6 - 9i + 4 + 10i = 10 + i$$

REF: 080906b

5 ANS: 4

$$(4 + 3i)(2 - 3i) = 8 - 12i + 6i - 9i^2 = 17 - 6i$$

REF: 061019b

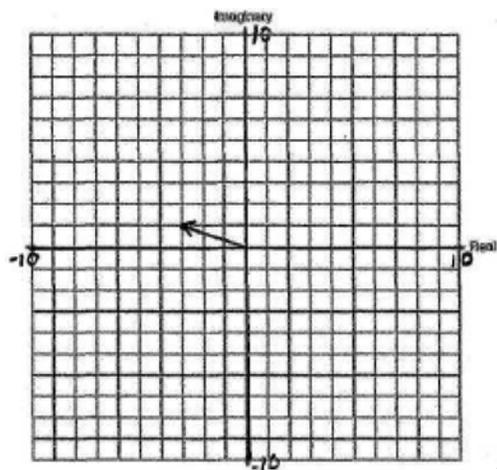
6 ANS:

$18 - 4i$ . The complex number in Quadrant I is  $8 + 8i$ . The complex number in Quadrant IV is  $10 - 12i$ .

$$(8 + 8i) + (10 - 12i) = 18 - 4i$$

REF: 060726b

7 ANS:

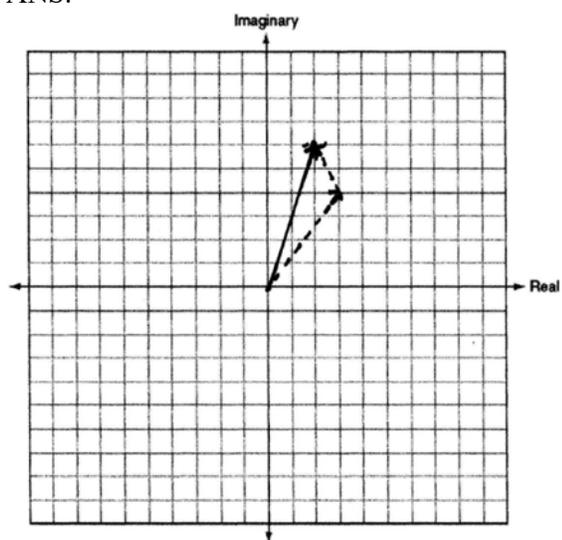


$$-3 + i$$

$$-2 + 3i + -1 - 2i = -3 + i$$

REF: 060621b

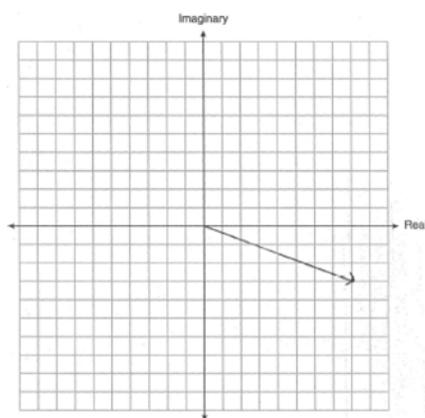
8 ANS:



$$(3+4i) + (-1+2i) = 2+6i$$

REF: 010724b

9 ANS:



$$8-3i$$

REF: 011023b