More Complex Number Computation

Name _____ Period_____

Simplify each expression.	Rationalize the expressions, make all demoninators real numbers.
1) $i + 6i$	2) $\frac{3}{5i}$
3) $3i + i$	4) $\frac{-1}{-9i}$
5) $-1 - 8i - 4 - i$	6) $\frac{6 + 8i}{9i}$
7) $-3 + 6i - (-5 - 3i) - 8i$	8) $\frac{-3 + 10i}{-6i}$
9) $4i(-2 - 8i)$	10) $\frac{10 - 10i}{-5i}$
11) $5i \cdot i \cdot -2i$	12) $\frac{8i}{-1 + 3i}$

Rationalize each of the denominators for the expressions below. Use the conjugate of the denominator in your work.

13) $\dfrac{1}{-8-5i}$

14) $\dfrac{i}{-2-8i}$

15) $\dfrac{4}{-3-6i}$

16) $\dfrac{-10-5i}{-6+6i}$

17) $\dfrac{-5-9i}{9+8i}$

18) $\dfrac{-4+10i}{3+4i}$

19) $\dfrac{-5-3i}{7-10i}$

20) $\dfrac{-3-7i}{7+10i}$

21. If you graph a complex number and its conjugate on the complex plane what happens?

22. If you add a complex number and its conjugate what happens? How does this show up on the complex plane?

23. If you multiply a complex number and its conjugate what happens? How does this show up on the complex plane?

PART 2

Find the Modulus for each complex number.

1) $|7 - i|$

2) $|-5 - 5i|$

3) $|-2 + 4i|$

4) $|3 - 6i|$

5) $|10 - 2i|$

6) $|-4 - 8i|$

7) $|-4 - 3i|$

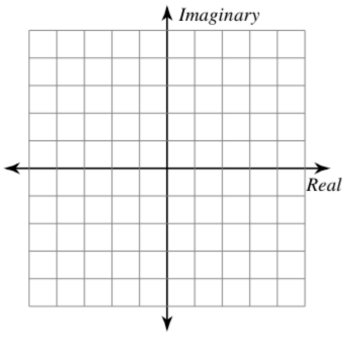
8) $|8 - 3i|$

9) $|1 - 8i|$

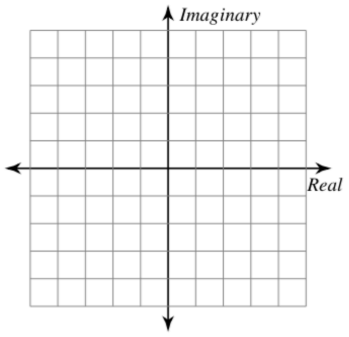
10) $|-4 + 10i|$

Draw a vector to represent each of the complex numbers

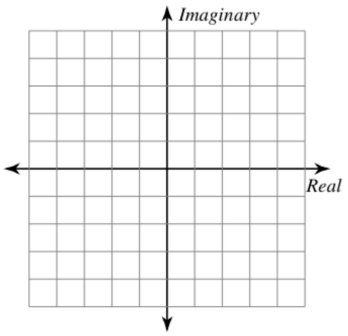
11) $-3 + 4i$



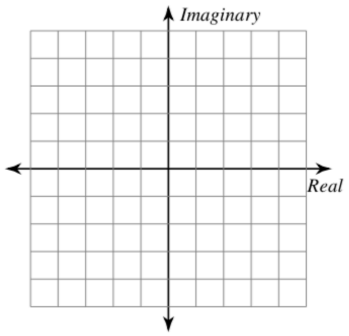
12) $-1 + 5i$



13) $-1 - 4i$



14) $4 + 4i$



Part 3

Find the distance between the complex numbers.

15. $9 + 8i \quad and \; 7 + 4i$

16. $-3 + 4i \quad and \; 5 + 6i$

17. $6 + 10i \quad and \quad -2 + 8i$

Find the midpoint between the complex numbers.

18. $9 + 8i \quad and \; 7 + 4i$

19. $-3 + 4i \quad and \; 5 + 6i$

20. $6 + 10i \quad and \quad -2 + 8i$