N: D: P: 1 2 3 4 5 6

Algebra 2: Topic 4 // **Review Worksheet B** *Mission Hills Math 2013*

Directions: Calculators are not allowed. Show any work on a separate sheet of paper and attach. Express any imaginary answers in terms of "i".

Perform the indicated operation. Express your answer as a real or complex number.

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

2) $(8 + 4i) + (6 - 2i)$

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

4) $(2 - 6i) - (3 - 2i)$

5) $6i(2i)$

6) $(4 + i)(4 - i)$

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

8) $(6 + 2i)(1 + 5i)$

9) $\frac{5}{2+i}$

10) $\frac{6}{3-2i}$

11) $\frac{3+3i}{2+5i}$

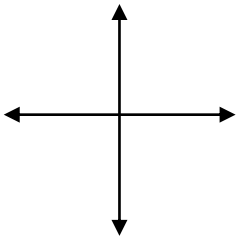
12) $\frac{4-2i}{1-4i}$

If $i = \sqrt{-1}$, find the value of each of the following:

13) i^2 14) i^3 15) i^4 16) i^5 17) i^{10} 18) i^{12}

Plot each of the following complex numbers on a single grid and label with the given letter.

19) A: 3 + 2i
20) B: -5 + i
21) C: 2 – 4i
22) D: -1 – 3i



Find the solutions to the following equations. Express any imaginary numbers in terms of "i".

23) $x^2 + 4x + 8 = 0$

24) $3x^2 - 4 = 71$

25) $x^2 - 2x - 24 = 0$

26) $x^2 = 8x$

27) $x^2 + 36 = 0$

28) $2x^2 - x + 5 = 0$

29) $2x^2 + 3x - 5 = 0$