Test 8 (Lessons 15–16): Complex Numbers

1) What is the definition of the imaginary number, i?

Evaluate.

2)
$$i^{37}$$

3)
$$i^{79}$$

Simplify in the form a + bi.

Name all of the sets to which the problems belong: real complex, pure imaginary complex, or complex.

4)
$$(5i-36)+(25-8i)$$

5)
$$4(3+2i^2)$$

6)
$$(6i-3)(i^8+i)$$

7)
$$12i - (3i^3 + 5i^3)$$

Simplify using imaginary numbers.

8)
$$\frac{3i}{\sqrt{-50}}$$

9)
$$\frac{-2i}{4-5i}$$

10) Determine the value of M that forms a polynomial identity. $(3x+i)^2 + (M-6ix) = (3x-2i)(3x+2i)$