

Homework #6: Powers of i

- 1 Mrs. Donahue made up a game to help her class learn about imaginary numbers. The winner will be the student whose expression is equivalent to $-i$. Which expression will win the game?
1) i^{46} 2) i^{47} 3) i^{48} 4) i^{49}
- 2 What is the greatest possible integral value of x for which $\sqrt{x-5}$ is an imaginary number?
1) 5 2) 6 3) 3 4) 4
- 3 When simplified, i^{99} is equivalent to
- 4 The product of i^7 and i^5 is equivalent to
1) 1 2) -1 3) i 4) $-i$
- 5 The expression $i^0 \cdot i^1 \cdot i^2 \cdot i^3 \cdot i^4$ is equal to
- 6 What is the value of $(5i^3)^3$?
- 7 The expression $\frac{i^{16}}{i^3}$ is equivalent to
1) 1 2) -1 3) i 4) $-i$
- 8 If i is the imaginary unit, the expression $i^8 + i^9 + i^{10} + i^{11}$ is equivalent to
- 9 Expressed in simplest form, $i^{16} + i^6 - 2i^5 + i^{13}$ is equivalent to
- 10 Determine the value of n in simplest form:
 $i^{13} + i^{18} + i^{31} + n = 0$
- 11 Simplify: $\sqrt{-9} \times \sqrt{-16}$
- 12 Simplify: $\sqrt{-3} \times \sqrt{-4}$
- 13 What is the solution set for x in the equation below?
 $\sqrt{x+1} - 1 = x$
1) $\{1\}$ 2) $\{0\}$ 3) $\{-1, 0\}$ 4) $\{0, 1\}$