

Imaginary / Complex Numbers Practice

Name _____

Date _____

1. For the complex number $-10 + 4i$, identify the real number and the imaginary number.

2. Evaluate. a) i^{56} b) i^{23} c) i^{12} d) i^{105}

3. Write the expression as a complex number in standard form.

a) $(5 + 2i) + (3 - 2i)$ b) $-i + (7 - 5i) - 3(2 - 3i)$ c) $(-2 + 4i) + (3 - 9i)$

d) $(-2 + 4i) - (3 + 9i)$ e) $(5 - 2i) - 2(3 + i)$ f) $3i(6 - 5i)$

g) $i(2 + i)$ h) $(2 + 3i)(1 - 4i)$ i) $(-3 + 7i)(1 - 2i)$

j) $(3 - 2i)^2$ k) $(2i)(1 - 4i)(1 + i)$

4. Solve each equation.

a) $x^2 = -60$ b) $4x^2 + 20 = 0$ c) $6x^2 + 1 = -5$

d) $3(x - 1)^2 = -27$ e) $(x + 5)^2 + 10 = 2$ f) $5(2x + 8)^2 = -80$

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1. For the complex number $-10 + 4i$, identify the real number and the imaginary number.

2. Evaluate. a) i^2 b) i^3 c) i^4 d) i^9 e) i^{14}

3. Write the expression as a complex number in standard form.

a) $(5 + 2i) + (3 - 2i)$ b) $-i + (7 - 5i) - 3(2 - 3i)$ c) $(-2 + 4i) + (3 - 9i)$

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Answers

1. Real number: -10 ; Imaginary number: $4i$
2. A) $-2-4i$ B) $-7i$ C) 5 D) $3+2i$
3. a) -1 b) $-i$ c) 1
4. a) 8 b) $1+3i$ c) $1-5i$ d) $-5-5i$ e) $-1-4i$ f) $15+18i$ g) $-1+2i$
h) $14-5i$ i) $11+13i$ j) $13-12i$ k) $(2i)(1-3i-4i^2) = (2i)(5-3i) = (10i-6i^2) = 6+10i$
5. a) $\frac{5-5i}{2}$ b) $\frac{3}{4} + \frac{3i}{4}$ c) $\frac{4}{7} - \frac{2i}{7}$ d) $\frac{52-11i}{25}$ e) $\frac{28+44i}{85}$
6. a) $\sqrt{29}$ b) $\sqrt{41}$ c) $\sqrt{26}$ d) $\sqrt{5}$ e) 5
7. a) $\pm i\sqrt{5}$ b) $\pm i\sqrt{3}$ c) $-2 \pm 4i$ d) $4 \pm i\sqrt{19}$ e) $-2 \pm 5i$ f) $-4 \pm 3i$ g) $-\frac{1}{4} \pm \frac{3i}{4}$
h) $\frac{2}{3} \pm \frac{i\sqrt{2}}{6}$

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