Name: **Math 2 Classwork 8**

8-A Classification of Numbers

1. Put each number in the appropriate place in the diagram at right. Then circle the set(s) to which number belongs.

a) 30 natural • integer • rational • real • complex

b) -30 natural • integer • rational • real • complex

c) $\sqrt{30}$ natural • integer • rational • real • complex

d) $\sqrt{-30}$ natural • integer • rational • real • complex

e) $\frac{-5}{11}$ natural • integer • rational • real • complex

f) 1.209 natural • integer • rational • real • complex

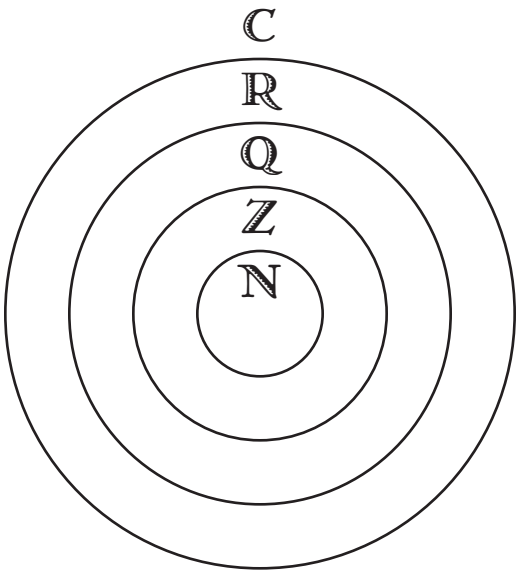
g) $\frac{1209}{1000}$ natural • integer • rational • real • complex

h) 5.12×10^{6} natural • integer • rational • real • complex

i) 5.12×10^{-6} natural • integer • rational • real • complex

j) -5.12×10^{6} natural • integer • rational • real • complex

k) -5.12×10^{-6} natural • integer • rational • real • complex



8-B Radicals

2. Simplify.

a) $\sqrt{20}$

b) $9 + \sqrt{5} + 3\sqrt{7} - 1 + 3\sqrt{20}$

c) $\sqrt{6} \cdot \sqrt{15}$

d) $\sqrt{480}$

e) $\sqrt{480a^{10}b^{11}c^{17}d}$

f) $\sqrt{\frac{20}{9x^{8}}}$

g) $\sqrt{\frac{8}{54}}$

h) $\frac{2+\sqrt{5}}{4+\sqrt{3}}$

8-C Complex Numbers

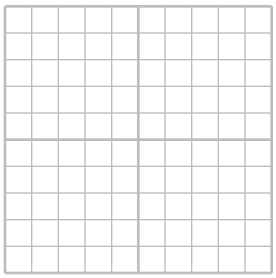
3. Plot and label each number on the complex plane.

a) $3 + 5i$

b) $3 - 5i$

c) $-5i$

d) 3



4. Simplify.

a) $(2 + 10i) + (5 - 4i)$

b) $(2 + 10i)(5 - 4i)$

c) $\sqrt{-16}$

c) $\sqrt{-80}$

8-D Completing the Square

5. Solve by completing the square. Simplify answers.

a) $(x - 5)^2 = 16$ b) $x^2 - 10x + 25 = 16$ c) $x^2 - 10x + 9 = 0$ d) $x^2 - 10x + 21 = 0$

e) $x^2 - 10x + 16 = 0$ f) $x^2 - 10x + 29 = 0$ g) $x^2 + 12x + 15 = 3$ h) $2x^2 + 12x + 15 = 3$

8-E The Quadratic Formula

6. Solve by using the quadratic formula. Simplify answers.

a) $2x^2 + 9x + 5 = 0$ b) $2x^2 = 9x + 5$ c) $3x^2 + x + 5 = 1$ d) $3x^2 + 2x + 5 = 1$

7. For each problem, solve by whatever method is easiest.

a) $x^2 - 14x + 33 = 0$ b) $x^2 + 20x + 125 = 0$ c) $2x^2 + 20x + 125 = 0$ d) $2x^2 + 20x + 125 = 5$

8. State the number of x-intercepts of the following parabolas.

a) $y = 2x^2 + 8x + 8 = 0$ b) $y = 2x^2 + 50x + 9$ c) $y = 20x^2 + 2x - 5$ d) $y = 4x^2 + 3x + 20$