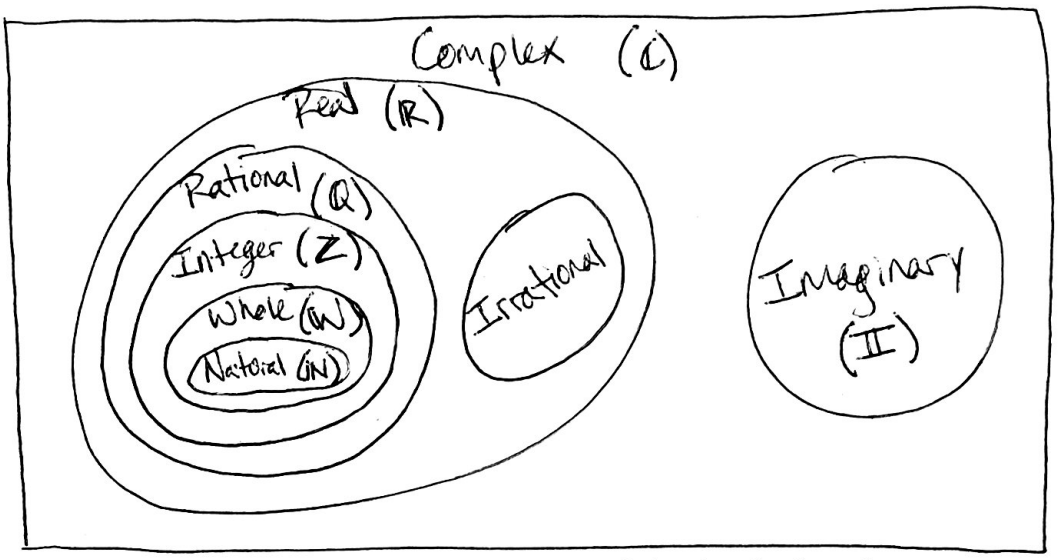
Secondary Math 2

Name Key

Unit 2 Number System Review

Date _____ Period ____

1) Draw the number classification map.



2) If a number is an integer, what other sets does it also belong to?

ℚ, ℝ, ℂ

3) If a number is irrational, what other sets does it also belong to?

ℝ, ℂ

List all the sets to which the number belongs.

4) -3

ℂ ℝ ℚ ℤ

5) $\sqrt{6}$

ℂ ℝ Irrational

6) $\sqrt{81}$

ℂ ℝ ℚ ℤ 𝕎 ℕ

7) $\sqrt{-5}$

ℂ 𝕀

8) $\frac{18}{6}$

ℂ ℝ ℚ ℤ 𝕎 ℕ

9) $5 - 2i$

ℂ

Identify the real and imaginary part of each complex number.

10) $2 + 10i$

Real: 2

Imaginary: 10

11) $-4 + i$

Real: -4

Imaginary: 1

Simplify.

12) $\sqrt{24}$

$2\sqrt{6}$

13) $\sqrt{108}$

$6\sqrt{3}$

14) $\sqrt[3]{32}$

$2\sqrt[3]{4}$

15) $4\sqrt{64}$

32

16) $6\sqrt[3]{-320}$

$-24\sqrt[3]{5}$

17) $3\sqrt{28}$

$6\sqrt{7}$

18) $\sqrt{-121}$

$11i$

19) $\sqrt{-256}$

$16i$

20) $\sqrt{-25}$

$5i$

21) $\sqrt{-9}$

$3i$

22) $\sqrt{-48}$

$4i\sqrt{3}$

23) $\sqrt{147}$

$7i\sqrt{3}$

Simplify. Use absolute value signs when necessary.

24) $\sqrt{112ab^2}$

$4|b|\sqrt{7a}$

25) $\sqrt{28x^4y^4}$

$2x^2y^2\sqrt{7}$

26) $\sqrt{180uv^3}$

$6|v|\sqrt{5uv}$

27) $\sqrt{45u^3v^2}$

$3|$

28) $\sqrt[3]{875x^8y^6}$

$5x^2y^2\sqrt[3]{7x^2}$

29) $\sqrt[3]{-32m^5n^5}$

$-2mn\sqrt[3]{4m^2n^2}$

30) $\sqrt{-112x^2y^4}$

$4ixy^2\sqrt{7}$

31) $\sqrt{-54x^2y^3}$

$3ixy\sqrt{6y}$

Simplify.

32) $-3 + (5i) - (3 - 5i)$

$-6+10i$

33) $(7 + 5i) - (-1 + 8i)$

$8-3i$

34) $(-6 - i) + (-4 + 2i)$

$-10+i$

35) $(2 - 7i) + (2 - 3i)$

$4-10i$

36) $(4 - 6i)(-3 - 5i)$

$-42-2i$

37) $(-8 - 3i)(3 - 3i)$

$-33+15i$

38) $(-1 + 7i)(7 + 8i)$

$-63+41i$

39) $(8 - 8i)^2$

$-128i$

40) $5(2 + i) - 4(3 - 10i)$

$-2+45i$

41) $4i(6 - 2i) + 2(11 - 8i)$

$30+8i$

Determine if the result of each situation will be rational or irrational. Give examples to support your answer.

42) Sum of a rational and an irrational number

Irrational

43) Sum of two rational numbers

Rational

44) Product of two irrational numbers

Rational or Irrational

45) Product of two rational numbers

Rational

46) Sum of two irrational numbers

Rational or Irrational

47) Product of a rational and an irrational number

Irrational