**Math 201: Class Discussion**

**29 Aug 2019**

Introduction to sets

Study carefully sections 1.1 – 1.4 of Hammack

The following notation is commonly used: **Z** for the set of integers; **N** for the set of positive integers (the “natural numbers”), **Q** for the set of all rational numbers; **R** for the set of all real numbers, and $∅ $the empty set$.$

1. List the elements of each of the following sets: (a) {x∈ R : x4 – 1 = 0} (b) {x∈ Z : -1/3 < x < 5.99}

(c) {x ∈ N | x ≤ 4} (d) {unicorns| unicorn lives in Illinois} (e) {} (f) {φ}

(g) {1, {2}}

1. Write in set notation: (a) {4, 9, 16, 25, …} (b) {1/1, 1/3, 1/5, 1/7, …} (c) {…l/8, ¼, ½, 1, 2, 4, 8, …}
2. Determine the cardinality of each set in (A).
3. Find cardinality of each of the following sets:

$$\left\{Kansas City, Phoenix, Sacramento, Denver\right\}$$

{{Friday}, {blue moon}, {dragonfly}}

{{1, 2}, {{7, 0, 3}}}

{p$\in N| p is prime and p\leq 25\}$

{{1}, {2, {3, 4}}, $∅$}

{{1, 4}, a, b, { {3, 4}}, $\{∅$}}

{x$\in Z | \left|x\right|<10\}$

1. Sketch the following sets of points in the xy-plane.



1.



1. Find the power set of each of the following sets:



**9**. in general if |S| = n, what is |P(S)|?

 





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