

# MTH 151 Homework #1 Key

1a.  $A = \{R, O, M, E, A, N, D, J, U, L, I, T\}$

b.  $B = \{J, U, L, I, S, C, A, E, S, R\}$

c.  $A \cup B = \{A, C, D, E, I, J, L, M, N, O, R, S, T, U\}$

d.  $A \cap B = \{A, E, I, J, L, R, U\}$

e.  $|A| = n(A) = 12$

f.  $|A \cap B| = n(A \cap B) = 7$

g.  $B' = \{B, D, F, G, H, K, M, N, O, P, Q, T, V, W, X, Y, Z\}$

2.a.  $\{-1, 1\}$

b.  $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11\}$

c.  $\{0, 1, 4, 9, 16, 25, 36, 49, 64, 81\}$

d.  $\emptyset$

3.a. **false**

Q not an element

$$Q = \{2, 4, 6, \dots, 18, 20\}$$

b. **false**

$$R = \{\dots, -6, -4, -2, 0, 2, 4, 6, \dots\}$$

c. **false**

6 not a set

d. **true**

e. **true**

f. **true**

4a. **false**

nothing in empty set

b. **false**

$\{0\}$  not an element

c. **true**

$\emptyset$  subset of every set