Note Title 12/6/2013

a) $f(X) = A - X \qquad X \in P(A)$

$f(f(x)) = X$

1-1 & onto

b) $f(x,y) = (1-x, 1-y)$ bijection.

c) $f: \mathbb{Z} \to \mathbb{Z} \qquad f(x) = 3x$

1-1 not onto

d) $f: \mathbb{Z} \to \mathbb{Z} \qquad f(x) = \lfloor x/3 \rfloor$

not 1-1. onto.

e $f: \mathbb{R} \to \mathbb{R} \qquad f(x) = x^3$ 1-1 onto

2a) $5 + 5(2.1) + \cdots + 5(2.1)^7$

$\sum_{j=0}^{7} 5(2.1)^j$

$$5\left[\frac{(2.1)^8-1}{2.1-1}\right]$$

Quiz 3 Q1:

$(a+b)^3$

$= a^3 + 3a^2b + 3ab^2 + b^3$

x is odd

x^3 is odd.

$2k+1$

$\Rightarrow (2k+1)^3 \rightarrow 8k^3 + 4k^2 + 2k + 1$

$2(4k^3 + 2k^2 + k) + 1$

$4k^3 + 2k^2 + k$

$\Leftarrow$

~~$\Rightarrow$~~ 1) (x, y) xRy x earns more \$ than y.

Anti - ~~R~~reflexive.

Anti - Symmetric

transitive.

2. $x/y \Rightarrow xRy$ related.

x/x related? Reflexive.

x/y related Symmetric
then y/x is related.

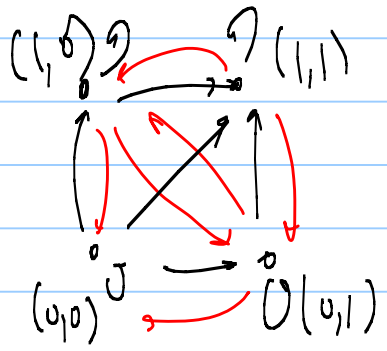
$\frac{x}{y}$ related $\frac{y}{z}$ related

$\frac{x}{y} = \frac{a}{b}$ $\frac{y}{z} = \frac{c}{d}$. a, b, c, d integers.

$\frac{x}{y} \cdot \frac{y}{z} = \frac{x}{z} = \frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$. Transitive.

$X \vee T \equiv T$

$X \to y \equiv \neg X \vee y$



$a \leq c \wedge b \leq d$

✓