CS 173, Fall 2016
Examlet 7, Part A

NETID:

FIRST:	LAST:

Discussion: Thursday 2 3 4 5 Friday 9 10 11 12 1 2

Use (strong) induction to prove the following claim:

For any natural number n, $2n^3 + 3n^2 + n$ is divisible by 6.

Proof by induction on n.

Base case(s):

Inductive Hypothesis [Be specific, don't just refer to "the claim"]:

Rest of the inductive step:

CS 173, Fall 2016
Examlet 7, Part A

NETID:

FIRST:	LAST:

Discussion: Thursday 2 3 4 5 Friday 9 10 11 12 1 2

Use (strong) induction to prove the following claim:

Claim: $\sum_{j=1}^{n} \frac{1}{(2j-1)(2j+1)} = \frac{n}{2n+1}$ for all integers $n \geq 1$.

Proof by induction on n.

Base case(s):

Inductive Hypothesis [Be specific, don't just refer to "the claim"]:

Rest of the inductive step:

CS 173, Fall 2016
Examlet 7, Part A

NETID:

FIRST:	LAST:

Discussion: Thursday 2 3 4 5 Friday 9 10 11 12 1 2

Use (strong) induction to prove the following claim:

Claim: $3^{2n+1} + 1$ is divisible by 4, for all natural numbers n

Proof by induction on n.

Base case(s):

Inductive Hypothesis [Be specific, don't just refer to "the claim"]:

Rest of the inductive step:

CS 173, Fall 2016
Examlet 7, Part A

NETID:	

FIRST:	LAST:

Discussion: Thursday 2 3 4 5 Friday 9 10 11 12 1 2

Use (strong) induction to prove the following claim:

Claim: $\sum_{j=2}^{n} \frac{1}{j(j-1)} = \frac{n-1}{n}$ for all integers $n \geq 2$.

Proof by induction on n.

Base case(s):

Inductive Hypothesis [Be specific, don't just refer to "the claim"]:

Rest of the inductive step:

CS 173, Fall 2016
Examlet 7, Part A

NETID:

FIRST:	LAST:

Discussion: Thursday 2 3 4 5 Friday 9 10 11 12 1 2

Use (strong) induction to prove the following claim:

Claim: $7^n - 2^n$ is divisble by 5, for all natural numbers n.

Proof by induction on n.

Base case(s):

Inductive Hypothesis [Be specific, don't just refer to "the claim"]:

Rest of the inductive step:

CS 173, Fall 2016
Examlet 7, Part A

NETID:	

FIRST:	LAST:

Discussion: Thursday 2 3 4 5 Friday 9 10 11 12 1 2

Use (strong) induction to prove the following claim:

Claim: $\sum_{j=1}^{n} j(j+1) = \frac{n(n+1)(n+2)}{3}$, for all positive integers n.

Proof by induction on n.

Base case(s):

Inductive Hypothesis [Be specific, don't just refer to "the claim"]:

Rest of the inductive step: