CS 173, Spring 2015
Examlet 1, Part A

NETID:

FIRST:

LAST:

Discussion: Monday 9 10 11 12 1 2 3 4 5

1. (5 points) State the negation of the following claim, moving all negations (e.g. "not") so that they are on individual predicates.

Claim: There is a relish r such that r is orange but r is not spicy.

3. (5 points) Suppose that G and H are functions whose inputs and outputs are real numbers, defined by $G(x) = x - 5$ and $H(x) = \sqrt{x+1}$. Compute the value of $H(H(G(13)))$, showing your work.

2. (5 points) Give a truth table for the following expression and (using your truth table or other means) find a simpler expression equivalent to it.

$(p \wedge q) \vee q =$

p	q			
T	T			
T	F			
F	T			
F	F			

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State the negation and the contrapositive of the following claim, moving all negations (e.g. "not") so that they are on individual predicates.

Claim: For every cat c, if c is not fierce or c wears a collar, then c is a pet.

1. (5 points) Negation

2. (5 points) Contrapositive

3. (5 points) Solve $5x + m = \frac{n}{5}$ for x, expressing your answer as a single fraction. Show your work.

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State the negation and the contrapositive of the following claim, moving all negations (e.g. "not") so that they are on individual predicates.

Claim: For every tiger k, if k is orange, then k is large and k is not friendly.

1. (5 points) Negation

2. (5 points) Contrapositive

3. (5 points) Suppose that F and G are functions whose inputs and outputs are positive real numbers, defined by $F(x) = x^2 + 14x$ and $G(x) = \sqrt{x + 49}$. Compute the value of $G(F(p))$. Simplify your answer and show your work.

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State the negation and the contrapositive of the following claim, moving all negations (e.g. "not") so that they are on individual predicates.

Claim: For every dragon d, if d is green, then d is not large or d is fat.

1. (5 points) Negation

2. (5 points) Contrapositive

3. (5 points) Solve $\frac{3}{x} + m = \frac{3}{p}$ for x, expressing your answer as a single fraction. Show your work.

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State the negation and the contrapositive of the following claim, moving all negations (e.g. "not") so that they are on individual predicates.

Claim: For every dinosaur d, if d is huge, then d is not a juvenile and d is a sauropod.

1. (5 points) Negation

2. (5 points) Contrapositive

3. (5 points) Suppose that k is a positive integer, x is a positive real number, and $\frac{1}{k} = x + \frac{1}{6}$. What are the possible values for k? (Hint: k is an INTEGER.) Briefly explain or show work.

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State the negation and the contrapositive of the following claim, moving all negations (e.g. "not") so that they are on individual predicates.

Claim: For every dragon d, if d is green, then d is not large or d is fat.

1. (5 points) Negation

2. (5 points) Contrapositive

3. (5 points) Solve $16p^2 - 81 = 0$ for p. Show your work.