

CS 173, Fall 2016
Examlet 1, Part B

NETID:

FIRST:

LAST:

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

1. (5 points) $\log_4(16^c) + \log_3(9^c) =$

2. (10 points) Check the (single) box that best characterizes each item.

$\neg(p \rightarrow q) \equiv p \rightarrow \neg q$

true

☐

false

☐

Shorthand for the set of integers.

$\mathbb{J}$

☐

$\mathbb{N}$

☐

$\mathbb{W}$

☐

$\mathbb{Z}$

☐

$\log_2 3 < \log_3 2$

true

☐

false

☐

$\sqrt{-1} \in \mathbb{C}$

true

☐

false

☐

$\sqrt{2} \in \mathbb{R}$

true

☐

false

☐

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1. (5 points) $\frac{1}{(\frac{1}{2})^{10} + (-\frac{1}{2})^{11}} =$

2. (10 points) Check the (single) box that best characterizes each item.

The interval (a, b) contains b .

true

☐

false

☐

$\neg(p \wedge \neg q) \equiv \neg p \wedge q$

true

☐

false

☐

$(p \vee \neg p) \rightarrow q$

true

☐

false

☐

depends on q

☐

$\log_3 2 \leq \log_2 3$

true

☐

false

☐

$\lfloor -3 \rfloor$

3

☐

-3

☐

4

☐

-4

☐

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1. (5 points) $\frac{\log_3(81^k)}{7k} =$

2. (10 points) Check the (single) box that best characterizes each item.

$\sqrt{2} \in \mathbb{Q}$

true

☐

false

☐

$3^{\lfloor -1.5 \rfloor} =$

-3

☐

$\frac{1}{9}$

☐

$\frac{1}{3\sqrt{3}}$

☐

$\frac{1}{3}$

☐

For any reals x and y ,

$\lfloor x + y \rfloor = \lfloor x \rfloor + \lfloor y \rfloor.$

true

☐

false

☐

$p \rightarrow q \equiv \neg q \rightarrow \neg p$

true

☐

false

☐

For any real number x ,

if $|x + 5| \leq 10$, then $|x| \leq 20$.

true

☐

false

☐

undefined

☐

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1. (5 points) $\frac{1}{(\frac{1}{2})^4 + (-\frac{1}{2})^6} =$

2. (10 points) Check the (single) box that best characterizes each item.

$p \wedge q \equiv \neg(p \rightarrow \neg q)$

true

☐

false

☐

If George Clooney is
 president, then $\pi = 3$.

true

☐

false

☐

undefined

☐

For any reals x and y ,
 $\lfloor x + y \rfloor \geq \lfloor x \rfloor + \lfloor y \rfloor$.

true

☐

false

☐

$0 \in \mathbb{N}$

true

☐

false

☐

For any real number x , $\lfloor x \rfloor \leq \lceil x \rceil$.

true

☐

false

☐

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1. (5 points) Suppose $\log_k x = 5$. Then $\log_k(kx^{-3}) =$

2. (10 points) Check the (single) box that best characterizes each item.

$\exists n \in \mathbb{Z}$, such that $n^2 = 1$.

true

☐

false

☐

undefined

☐

For any real number x ,
 if $x > 10$, then $x^2 > 0$.

true

☐

false

☐

undefined

☐

$[-3.4]$

-3

☐

-4

☐

3.4

☐

undefined

☐

$0 \in \mathbb{Z}^+$

true

☐

false

☐

$\log_7 5 < 1$

true

☐

false

☐

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1. (5 points) $\log_2(40) - \log_2(5) =$

2. (10 points) Check the (single) box that best characterizes each item.

$3^2 = 9$ or $4^2 = 15$

true

☐

false

☐

For any real number x ,
 if $x > 10$, then $x^2 > 0$.

true

☐

false

☐

undefined

☐

If 7 is even, then 7 is a perfect square.

true

☐

false

☐

undefined

☐

$0 \in \mathbb{Z}$

true

☐

false

☐

7 is a rational number

true

☐

false

☐