

Name: _____

NetID: _____

Lecture: A B

Discussion: Thursday Friday 10 11 12 1 2 3 4 5 6

1. (5 points) Simplify, showing your work.

$$2^{\log_4 n} =$$

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

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

true

☐

false

☐

Shorthand for the set of integers.

 $\mathbb{J}$ ☐ $\mathbb{N}$ ☐ $\mathbb{W}$ ☐ $\mathbb{Z}$ ☐For any reals x and y ,

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

true

☐

false

☐For any real number x ,

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

true

☐

false

☐

$$\log_2 3 < \log_3 2$$

true

☐

false

☐

Name: _____

NetID: _____ Lecture: A B

Discussion: Thursday Friday 10 11 12 1 2 3 4 5 6

1. (5 points) Multiply out and simplify, showing your work.

$$(x^{x-2} + x^2)^2 =$$

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

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

true ☐ false ☐

$$\exists n \in \mathbb{Z}, n \geq 3 \text{ and } n \leq 3.$$

true ☐ false ☐ undefined ☐

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

true ☐ false ☐

$$\lfloor -3.4 \rfloor + \lceil -3.4 \rceil$$

-6 ☐ -6.8 ☐ -7 ☐ -8 ☐

For any real number x ,
if $x > 10$, then $x \geq 10$.

true ☐ false ☐

Name: _____

NetID: _____ Lecture: A B

Discussion: Thursday Friday 10 11 12 1 2 3 4 5 6

1. (5 points) Simplify, showing your work.

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

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

$6 \in \mathbb{C}$

true

☐

false

☐

For any real numbers x and y ,
if $x \leq y$, then $x^2 \leq y^2$.

true

☐

false

☐

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

true

☐

false

☐

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

true

☐

false

☐

depends on q

☐

If U. Illinois is in Paris,
then $\pi < 0$.

true

☐

false

☐

undefined

☐

Name: _____

NetID: _____

Lecture: A B

Discussion: Thursday Friday 10 11 12 1 2 3 4 5 6

1. (5 points) Simplify, showing your work.

$$(\log_2 17)(\log_{17} 64) =$$

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

$\exists n \in \mathbb{Z}$, such that $n^2 = 10$.

true

☐

false

☐

undefined

☐

7 is a rational number

true

☐

false

☐

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

true

☐

false

☐

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

true

☐

false

☐

For any real numbers x and y ,
if $x \leq 6$ and $y \leq 2$, then $x - y \leq 4$.

true

☐

false

☐

Name: _____

NetID: _____

Lecture: A B

Discussion: Thursday Friday 10 11 12 1 2 3 4 5 6

1. (5 points) Simplify, showing your work.

$$\frac{1}{\left(\frac{1}{2}\right)^{10} + \left(-\frac{1}{2}\right)^{11}} =$$

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

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

true

☐

false

☐For any integer x ,if x is positive, then x is a real number.

true

☐

false

☐For any real numbers x and y ,if $xy \leq 17y$, then $x \leq 17$.

true

☐

false

☐

Shorthand for the set of rationals.

 $\mathbb{R}$ ☐ $\mathbb{F}$ ☐ $\mathbb{Q}$ ☐ $\mathbb{B}$ ☐

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

-3

☐ $\frac{1}{9}$ ☐ $\frac{1}{3\sqrt{3}}$ ☐ $\frac{1}{3}$ ☐

Name: _____

NetID: _____ Lecture: A B

Discussion: Thursday Friday 10 11 12 1 2 3 4 5 6

1. (5 points) Simplify, showing your work.

$$\frac{(2^3 \times 2^5)^{10}}{512} =$$

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

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

true

☐

false

☐

$$\text{If } \pi > 7, \text{ then } 3 < 1$$

true

☐

false

☐

undefined

☐

$$\lfloor -3.4 \rfloor$$

-3

☐

-4

☐

3.4

☐

undefined

☐The interval $[a, b]$ contains b .

true

☐

false

☐For any real number x , $2\lfloor x \rfloor \leq \lfloor 2x \rfloor$

true

☐

false

☐