

# Midterm I Review

MATH 301  
October 1, 2020

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1.1 (a) Yes. False.

(b) Yes. True.

(c) No.

(d) No.

(e) No.

1.2 (a)  $P$  : The number 8 is even.

$Q$  : The number 8 is a power of 2.

$P \wedge Q$

(b)  $P : y < x$

$\neg P$

(c)  $P : x \in \mathbb{Z}$  and  $x$  is divisible by 8.

$Q : x$  is divisible by 4.

$P \implies Q$

(d)  $P : x = 0$

$Q : y \neq 0$

$P \wedge Q$

(e)  $P$  : A series converges absolutely.

$Q$  : A series converges.

$P \implies Q$

(f)  $P : x = y$

$\neg P$

(g)  $P : x = 0$

$Q : y = 0$

$P \vee Q$

1.3