

2 office hrs / week  
on Zoom

Time: TBD (Fall)

Today: worksheet on Canvas  
under Files > Discussion D

1. What do you think the point of this class is? What do you think we're going to cover? How do you think this class fits into your math education? Do you think you'll enjoy this class?

Nervous!

2. Write the following statement in if-then form: "Every integer divisible by 5 ends in a 0 or a 5 (when written in its usual decimal form)."

If an integer is divisible by 5

MOCS.

then it will end in a '5'  
or a '0'.

3. Write the converse of the statement "If you love me, then you will marry me."

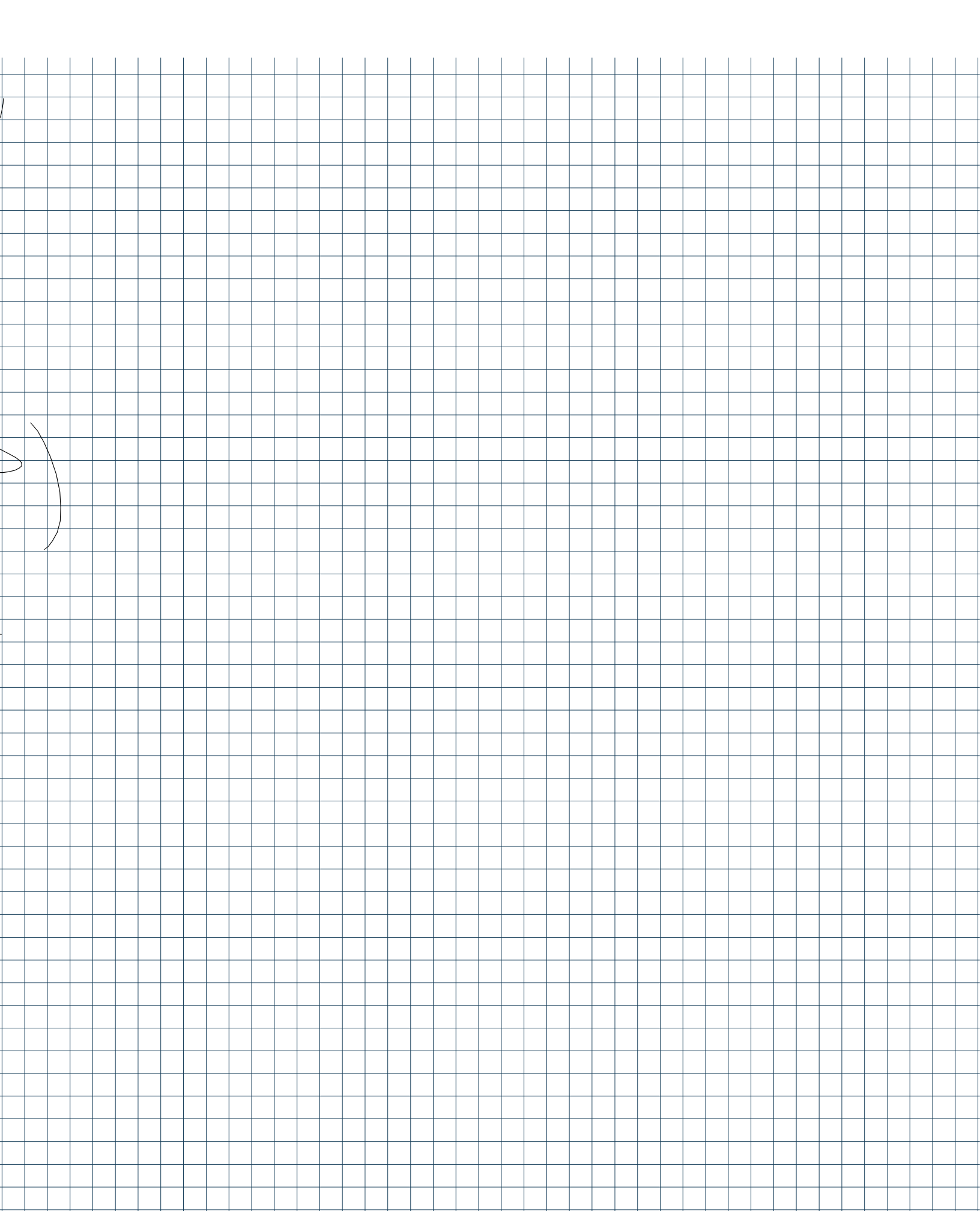
converse of (if  $P$  then  $Q$ )  $\Rightarrow$  (if  $Q$  then  $P$ )  
 $\rightarrow$  If you <sup>will</sup> marry me, then you love me.

4. Which of the following statements are true and which are false? You don't have to prove your answers (but you should give it a shot!)

- (a) Every integer is positive or negative.
- (b) Every integer is even and odd.
- (c) If  $x$  is an integer and  $x > 2$  and  $x$  is prime, then  $x$  is odd.
- (d) Let  $x$  and  $y$  be integers. We have  $x^2 = y^2$  if and only if  $x = y$ .
- (e) The sides of a triangle are all congruent to each other if and only if its three angles are all  $60^\circ$ .
- (f) If an integer  $x$  satisfies  $x = x + 1$ , then  $x = 6$ .

a) False:  $0$  is neither pos nor neg.

b) False: "odd" is def'd to be  
 "not even"



not even

(True of "and"  $\rightarrow$  "or")

C) True: - "based on my previous knowledge."

$$(P \rightarrow Q) \Leftrightarrow (\neg Q \Rightarrow \neg P)$$

PF: if  $x$  is even  $\Rightarrow$  divisible by

$\Rightarrow$   $\overbrace{0, 2, 4, 6, 8}^{\text{prime}}$   
not

$\Rightarrow$  either  $x \leq 2$   
or  $x$  not

7. Can you write  $x \Rightarrow y$  using only  $\neg$ ,  $\vee$  and  $\wedge$ ?

$x$	$y$	$x \Rightarrow y$
T	T	T
T	F	F
F	T	T
F	F	T

e''

P)

Z

→

prime

prime

17

T	F	F
F	T	T
F	F	T

$$x \Rightarrow y = (x \wedge y) \vee (\neg x \wedge y) \vee (\neg x \wedge \neg y)$$

$\lambda \rightarrow y)$