Office hrs: Zoom 2 hrs / week

time: TBD

Today: worksheet on Canvas

Files > Discussion Docs

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?

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)."

~~that~~

converse is

if an int ends in 5

then it's divis by 5

If an int. is divisible by 5

then it ends in a '5' or a '0',

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

The converse of "if P then Q" is

or '01

The converse of "if P then Q" is

"if Q then P".

→ If you will 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. ← true if we said nonzero
   (b) Every integer is even and odd. ← true if we said 'or'
   (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°.
   (f) If an integer x satisfies $x = x + 1$, then $x = 6$.

a) If x is an integer then it's positive or negative.

False! 0 is neither!

b) If x is an int, then it's even or odd.

Def: an integer x is even if it's divisible by 2.

↳ $x = 2 \cdot y$ for some integer

& x is odd otherwise.

$0 = 2 \cdot 0 \Rightarrow 0$ is even

(b) is false since every integer is even (exclusive) or odd.

[x is prime if its only factors are x &

c) (c) If x is an integer and $x > 2$ and x is prime, then x is odd.

True: the contrapositive of "if P then Q" is

"if not Q then not P"

$\Leftrightarrow$

if x is even then it's not (>2 & prime)

Pf. if x is even, then x is

0, 2, 4, 6, 8, ...

≤ 2 not prime since they're divis by

(& they're not

$\Rightarrow x \leq 2$ or x not prime. ∎

(f) If an integer x satisfies $x = x + 1$, then $x = 6$.

1 since premise is false.

$F \Rightarrow T$ (If we win the game, then we'll get pizza. If we lose, but get pizza, did I lie?)

$x = x + 1$

$\Leftrightarrow 0 = 1$

$\Leftrightarrow$ no such x

the statement "if P then Q" is vacuously true if P is always false.

(Since $F \Rightarrow T$ is true)