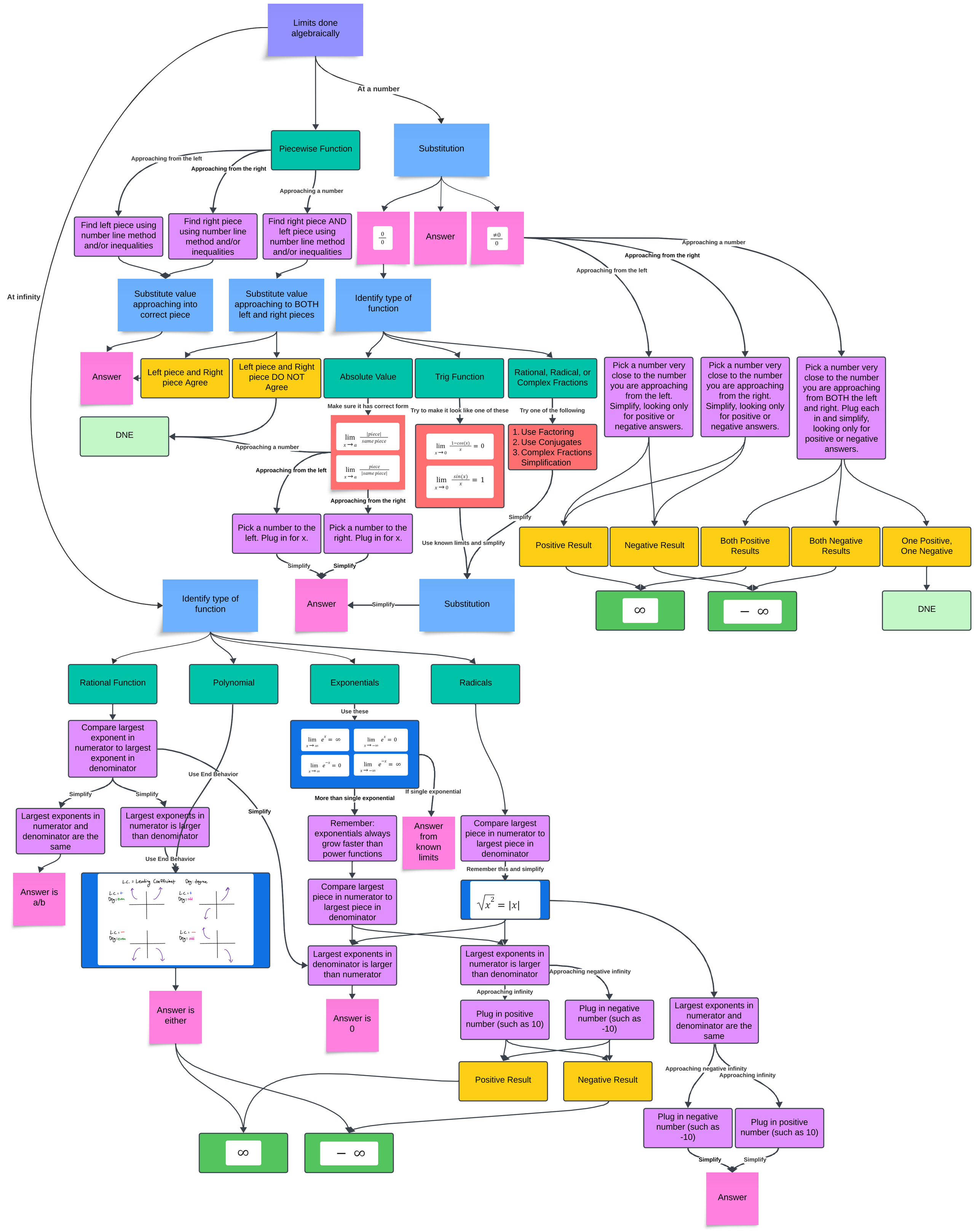
Limits done algebraically
At a number
At infinity
Piecewise Function
Substitution
Approaching from the left
Approaching from the right
Approaching a number
Find left piece using number line method and/or inequalities
Find right piece using number line method and/or inequalities
Find right piece AND left piece using number line method and/or inequalities
0/0
Answer
≠0/0
Substitute value approaching into correct piece
Substitute value approaching to BOTH left and right pieces
Identify type of function
Answer
Left piece and Right piece Agree
Left piece and Right piece DO NOT Agree
Absolute Value
Trig Function
Rational, Radical, or Complex Fractions
DNE
Make sure it has correct form
Try to make it look like one of these
Try one of the following
1. Use Factoring
2. Use Conjugates
3. Complex Fractions Simplification
Approaching a number
Approaching from the left
Approaching from the right
Pick a number to the left. Plug in for x.
Pick a number to the right. Plug in for x.
Use known limits and simplify
Simplify
Simplify
Simplify
Simplify
Identify type of function
Answer
Substitution
Pick a number very close to the number you are approaching from the left. Simplify, looking only for positive or negative answers.
Pick a number very close to the number you are approaching from the right. Simplify, looking only for positive or negative answers.
Pick a number very close to the number you are approaching from BOTH the left and right. Plug each in and simplify, looking only for positive or negative answers.
Positive Result
Negative Result
Both Positive Results
Both Negative Results
One Positive, One Negative
∞
− ∞
DNE
Rational Function
Polynomial
Exponentials
Radicals
Compare largest exponent in numerator to largest exponent in denominator
Use End Behavior
Simplify
Simplify
Simplify
Largest exponents in numerator and denominator are the same
Largest exponents in numerator is larger than denominator
Use End Behavior
Answer is a/b
L.c. = Leading Coefficient
Deg: degree
Answer is either
Use these
More than single exponential
If single exponential
Remember: exponentials always grow faster than power functions
Answer from known limits
Compare largest piece in numerator to largest piece in denominator
Remember this and simplify
Compare largest piece in numerator to largest piece in denominator
Largest exponents in denominator is larger than numerator
Largest exponents in numerator is larger than denominator
Approaching negative infinity
Approaching infinity
Answer is 0
Plug in positive number (such as 10)
Plug in negative number (such as -10)
Largest exponents in numerator and denominator are the same
Positive Result
Negative Result
Approaching negative infinity
Approaching infinity
Plug in negative number (such as -10)
Plug in positive number (such as 10)
Simplify
Simplify
Answer
∞
− ∞