steemit-equations-sandbox

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1 Introduction

$$
\begin{aligned}
1. A \vee (A \wedge B) &= A \wedge (A \vee B) && \text{Given} \\
&= (A \wedge A) \vee (A \wedge B) && \text{Distributive Law} \\
&= A \vee A \wedge B && \text{Idempotence} \\
&= A \vee (A \wedge B) && \text{Associative Law}
\end{aligned}
$$

$$
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&= (A \wedge A) \vee (A \wedge B) && \text{Distributive Lawn} \\
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$$

1. $P(x) =$ "$2^{2^x} + 1$ is a prime."
2. Q(x,y) = "x is prime or y is a divisor of x."
3. $L(f, c, l) =$ "The function f has limit l at c, if and only if, for every positive number ϵ, there is a positive number δ such that whenever $|x - c| < \delta$ it follows that $|f(x) - l| < \epsilon$"

$$
\begin{aligned}
F_0 &= 2^{2^0} + 1 = 3 \\
F_1 &= 2^{2^1} + 1 = 5 \\
F_2 &= 2^{2^2} + 1 = 17 \\
F_3 &= 2^{2^3} + 1 = 257 \\
F_4 &= 2^{2^4} + 1 = 65537 \\
F_5 &= 2^{2^5} + 1 = 4294967297 \\
4294967297 &= 641 * 6700417
\end{aligned}
$$

$\lfloor x+n \rfloor = \lfloor x \rfloor + \lfloor n \rfloor$	$\forall x \in R, \forall n \in Z$
$b = \lfloor x+n \rfloor$	we let the sum be equal to b
$b \leqslant x+n < (b+1)$	by definition

$\lfloor x \rfloor = a$	$\forall x \in R, \forall a \in Z$
$a \leqslant x < a+1$	by definition of floor function
$(a+n) \leqslant (x+n) < (a+n+1)$	adding n to all sides
$b \leqslant (x+n) < (b+1)$	from previous expressions

$\lfloor x+n \rfloor = a+n$	from previous expressions
$a = \lfloor x \rfloor$	by definition
$\lfloor x+n \rfloor = \lfloor x \rfloor + n$	by substitution
	$Q.E.D$