Answers to exercises in How To Prove It

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This is to answer all the questions in the books "How to prove it" by Velleman. Comments are appreciated!

Contents

1 Introduction

Exercise 1.1. (a) $a = 3,\ b = 5 \Rightarrow x = 2^5 - 1 = 31,\ y = 1 + 2^5 + 2^{10} = 1057$

(b) Since $32,767$ is not a prime, $2^{32,767} - 1$ is not a prime either. Therefore, there exists a positive integer $0 < x < 2^{32,767} - 1$ such that $2^{32,767} - 1$ is divisible by x. Hence, by (a), $x = 2^{31} - 1$ satisfies this.

Exercise 1.2.

n	$3^n - 1$	$3^n - 2^n$
2	8, not prime	5, prime

2 Chapter 1

Exercise 2.1. OK MAN