PROOFREADING EXERCISES

The following sentences are all based on actual student writing. Can you find the errors in them? (Some have more than one.)

(1) So we have that, $x = y$.
(2) Let $a \in A$ then for some $b \in B$ we have $a < b$.
(3) Consider the matrix M, it can be rewritten in the following way.
(4) We have $x \in A$ this implies it is positive.
(5) From the hint we know that $ab = c$, multiplying by a^{-1} gives $b = a^{-1}c$.
(6) When p is an prime number, it is 2 or it is odd.
(7) Assume that p is not prime, let $p = xy$ with $1 < x \leq y$.
(8) Clearing denominators allows you to obtain $a^2 = bc$.
(9) $f(x)$ is continuous over the inteval $[0, 1]$.
(10) We also now that a is even.
(11) Let $x \in S$ then we have $x > 0$.
(12) There is some x not in S, else we would have $x > 0$.
(13) Now assume that $H \subset G$, then we have that every element of H is in G.
(14) From the last equation, we get x = 8.
(15) Let $x \in H$, we need to show $x > 0$.
(16) Let $\{x_1, x_2, \dots\}$ be a totally ordered sequence, the following argument shows it has an upper bound.
(17) When $f(x)$ is a polynomial, then it is integrable.
(18) We know $(A + B)$ is invertible.
(19) It's not a trivial result since, 0 and 1, the two obvious choices can fail to have the property.
(20) To show that $x = y$. First, suppose $x > y$.
(21) The smallest prime factor of n is at least 100.
(22) We need only two show that $x \leq 0$.
(23) Assume that $a = b$, we will get a contradiction.
(24) Pick two consecutive Fibonacci numbers, Fn and $Fn + 1$.
(25) Let p be a odd prime number.
(26) The Pythagorean theorem says that for some right triangle with sides a, b, and c, $a^a + b^b = c^c$.
(27) Since p is prime, $(p - 1) > 0$.
(28) Then we can apply the concept $e^{x+y} = e^x e^y$.
(29) We need to find a and b to solve our equation.
(30) Let $n = 0$ then we can suppose $m > n$.
(31) For $i > 0$ $a_i = 0$, which is a contradiction.
(32) Consider x_n we will show that it is positive.
(33) The theorem is true for any x a positive number.
(34) When $x_n > 0$, $\forall n$ we can write $x_n = y_n^2$.
(35) If n equals to an even number than it can be written as $2m$ for some integer m.
(36) This number is also prime so it is in the set.

(37) There are an infinite possible ways that the digits might be wrong.
(38) However, I can't stop the paper yet, there are some drawbacks.
(39) Very little is known about Pythagoras because none of his writings have survived and that it is unknown which work credited to him was actually his work.
(40) An increasing sequence converges if and only it's bounded above.
(41) Much of work credited to Euclid is probably due to his students.
(42) This method is not very affective.
(43) Although we may think there are examples beyond those in our list, it turns out that there isn't.
(44) The subtraction of two odd numbers is even.
(45) The Pythagorean theory has many proofs.
(46) Not only has integrals been used to compute areas, but for other applications too.
(47) All off these functions are differentiable.
(48) Lambert proved that pi is Irrational.
(49) Lindemann proved pi as transcendental.
(50) Now, that we have seen how to derive the formula. Hopefully it is less mysterious.
(51) The fundamental theorem of calculus was invented by Newton and Leibniz.
(52) Lets inscribe a triangle in the circle.
(53) The equation is illustrated on the following picture.
(54) First we establish some notaiton to make the concept percise.
(55) A consequance of the theorem is that the size of each finite field is a prime power.
(56) We can see that sine the number is positive its a square.
(57) The diagram below can help when we are lacking of explaining the algebra.
(58) Another definition I need to include is an isometry which is a function that doesn't change distances like a rotation.
(59) Euler's proof was originally found in Stark's book in 1970.
(60) There arent any simple proofs known of this theorem.

(1) By a simple rearrangement, $\sqrt{ab} \leq \frac{a+b}{2}$ becomes $ab \leq \left(\frac{a+b}{2}\right)^2$.
(2) His article was titled "On the Dynamics of Moving Bodies."
(3) Pick two integers n and m.
(4) The most basic divergent series is the hamronic series

$$\sum_{n=1}^{\infty} \frac{1}{n} = 1 + \frac{1}{2} + \cdots + \frac{1}{n}.$$

(5) Consider an infinite series $\sum_{k=1}^{\infty} a_n$.
(6) We need to consider the negative terms and the positive terms.
(7) To solve for x, subract 1 from both sides.
(8) The conclusion is quite suprising, so lets consider it more carefully.
(9) For all intensive purposes, we may assume $f(x)$ is smooth.
(10) Applications of polynomials are many in linear algebra.
(11) Another theorem involves solutions to equation $a^2 + b^2 = c^2$.
(12) We start with $x^2 - y^2$. Which is the same as $(x + y)(x - y)$.
(13) Let x be the closest integer π, so $x = 3$.
(14) We need to show a solution to $y' = xy$.
(15) The coefficients in $x^2 + y^2 = z^2$ are infinitely often integers.
(16) Choose a positive integer a and let b be defined by $\frac{1}{b} + \frac{1}{a} = 1$.
(17) Set $A = \lim_{n\to\infty}\{a_n\}$.
(18) That transformation is a non-intuitive change in variables.
(19) Cramér published a text in Swedish Probability Theory and its Applications.
(20) The Prime Number Theorem was conjectured by Guass when he was a teenager.
(21) We have $a_n \to 0$. Which implies the error can be arbitarily small.
(22) Let's now define the Pythagorean Theorem.
(23) The circle is inscribed by three polygons each at least twice the area of the circle.
(24) Simplifying, we have $(ab/ac) = b/c$.
(25) Now lets look into the proof of that inequality.
(26) The triangle has sides length A, B, and C.
(27) There are farther application of this method in [1].
(28) Solving the equation gives several solutions:

$$x = 23 \pm 9$$

Or

$$x = 0.$$

(29) Any nonempty set of positive integers contains such a smallest element.
(30) Dividing both sides by x we get $3x + 1 < 5$.
(31) Before we prove this Newton's theorem, we need a preliminary result.
(32) It's time to take an in depth look at an example.
(33) The equation $\sum_{n=1}^{N} n^2$ can be written in closed form as follows.
(34) A power series can be thought of as a "polynomial" with infinite degree.
(35) This is another benefit or adopting the modular point of view.
(36) By L'Hôpital's Rule, the $\lim_{x\to\infty} x/e^x = 0$.
(37) The sum $1 - 1/2 + 1/3 - 1/4 + \cdots + (-1)^{n-1}/n + \cdots$ represents the alternating harmonic series.
(38) The evaluation of $1 - 1/3 + 1/5 - 1/7 + 1/9 - \cdots$ is due to Liebniz.
(39) The taylor series for $ln(x + 1)$ is $\sum_{n=1}^{\infty}(-1)^{(n-1)}/n$.

(40) Cryptography plays a crucial role in our web based world.
(41) Riemann, a German mathematician introduced a geometric viewpoint to analysis.
(42) The value of the integral is $\pi = 3.14$.
(43) The transpose of the matrix is invertible, so it is invertible.
(44) Now we can apply Green's thm.
(45) The partial sums of this divergent series are ∞.
(46) This leads to an infinite sequence of terms q_1, q_2, q_3, ect.
(47) Mathematicians could give many reasons why are such series interesting.
(48) For any positive integers m and n, let $s_m = \sum_{k=1}^{m} a_k$ and $t_n = \sum_{k=1}^{n} b_k$.
(49) We see that $|a_n - 2| \to 0$ as $n \to \infty$. Which implies a_n is positive for large n.
(50) At least two of the numbers leave the same remainder value when divided by 7.
(51) Many of the topics presented here are very deep topics.
(52) The average of $x_1, x_2, \ldots, x_n$ is $\frac{1}{n}(x_1 + x_2 + \cdots x_n)$.
(53) Since $f(a, b) = \pi/(a + b)$ the proof is compete.
(54) Let a, b, and c be the radii of three mutually tangent circles and let r be the radii of a fourth circle.
(55) The reciprical of any root is also a root.
(56) Given two tangent circles, then we want to find the intersection of their boundaries.
(57) The line parallel to L which passes through the origin is y = 2x.
(58) Factoring a large number by trial division could take a whole life time to complete.
(59) One example is the hyperbolic metric (Which will be discussed in more details later).
(60) The formula is given by

$$\kappa = \frac{1}{R}$$

Where R is the radius.