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The identity of Fermat equation and simple proof of Fermat's last theorem for $n = 5$

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Fermat's Last Theorem (FLT) for $n = 5$ was first proved by Legendre and Dirichlet. This proof is rather lengthy and difficult. We believe that FLT for any exponent can be proved by using the properties of $x + y - z$ where the integers x, y, z satisfy the equation corresponding to FLT for $n = 5$.

We have first used the Werebrusow identity which expresses the fifth power of $x + y - z$ to show that one of x, y, z is divisible by 5. In the next step, an equation of fifth degree related to the Werebrusow identity is defined. Using this equation and the property that $xyz \equiv 0 (\mathrm{mod}\, 5)$ and the Factor Theorem we have proved FLT for $n = 5$.

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