Why

TODO

Result

Prop. 1. *The expectation of the product of two independent random variables is the product of their expectations.*

Proof. Let f, g be two independent random variables. We want to show

$$\mathrm{E}\, fg = \mathrm{E}\, f\, \mathrm{E}\, g.$$

$\square$

Product Under Independence

Expectation

Random Variables

Topological Sigma Algebra

Outcome Variables

Probability Measures

Measurable Functions

Topological Spaces

Metrics

Measures

Extended Real Numbers

Distance

Real Limits

Space Distance

Event Probabilities

Absolute Value

Plane Distance

Probability Distributions

Interval Length

Uncertain Outcomes

Intervals

Real Line

Real Space

Real Plane

Real Summation

Real Sequences

Integral Line

Real Order

Sigma Algebras

Real Numbers

Sequences

Geometry

Rational Numbers

Direct Products

Set Numbers

Subset Algebras

Natural Summation

Integer Arithmetic

Finite Sets

Cardinality

Family Operations

Natural Multiplicative Identity

Natural Additive Identity

Set Operations

Algebras

Identity Elements

Arithmetic

Equivalent Sets

Operations

Function Inverses

Natural Powers

Integer Products

Integer Sums

Family Unions and Intersections

Families

Function Composites

Function Images

Natural Products

Integer Numbers

Functions

Relations

Recursion Theorem

Natural Order

Equivalence Relations

Subset Systems

Cartesian Products

Peano Axioms

Set Powers

Ordered Pairs

Natural Induction

Generalized Set Dualities

Unordered Triples

Natural Numbers

Successor Sets

Set Dualities

Set Unions and Intersections

Intersection of Empty Set

Partitions

Set Symmetric Differences

Set Complements

Pair Unions

Set Intersections

Set Differences

Set Unions

Pair Intersections

Empty Set

Unordered Pairs

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities

Sets

Names

Letters

Objects

Natural Sums