| WORKSPACE SETUP |
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## WINDOW 1

* 1. TCOLE
  2. Quiz

## WINDOW 2

* 1. [Symbolab](https://www.symbolab.com/)
  2. [Desmos](https://www.desmos.com/calculator)
  3. [Matrix Multiplier](https://matrix.reshish.com/multiplication.php)
  4. Google

| 12 INDEFINITE INTEGRALS AND FURTHER APPLICATIONS |
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## Fundamental Theorem of Calculus

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## Antidifferentiation Rules and Formulae

## Average Value of Function over interval [a,b]

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## Time Integrals

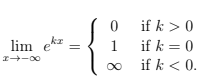
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| 13 LIMITS AND INTEGRATION TO INFINITY |
| --- |

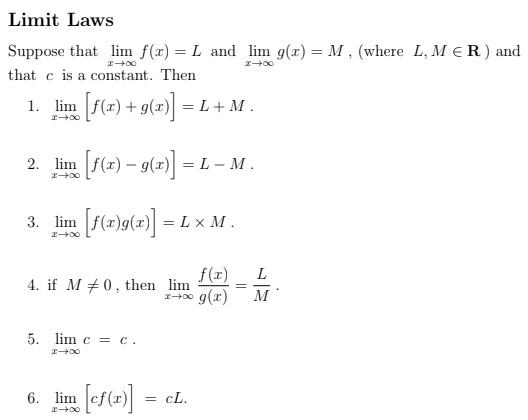
## Limits to Infinity

* 1. If then
  2. If then
  3. 

## Limits to Negative Infinity

* 1. 
  2. 

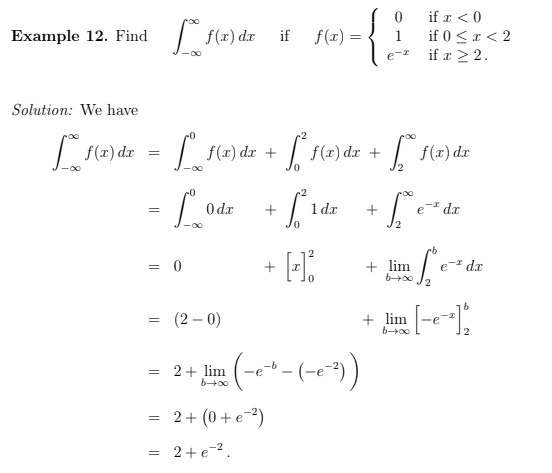
## Limit Laws



## Integration to Infinity

* 1. 
  2. 
  3. 
  4. 
  5. 
  6. 

### Example



| 14 FURTHER APPLICATIONS OF DIFFERENTIATION |
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## Linear Approximation

|  |
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## Approx. Max Error

| Approx. Max Error |
| --- |

## Approx. Max Percentage Error

| Approx. Max Percentage Error |
| --- |

## Angle of Inclination

|  |
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## Angle between two curves

* 1. Find the angle of inclination of each of the lines, and then
  2. Subtract the smaller angle from the larger angle

| 15 MATRICES AND SYSTEMS OF LINEAR EQUATIONS |
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## Scalar Multiplication

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## Order

|  |
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| Square Matrix |
| --- |

## General Form of a Matrix

<diagram>

## Equality

and are only equal if and only if:

1. They are of the same order
2. Corresponding elements are equal for all

## Matrix Addition

only exists if and have the same order

## Matrix Multiplication

* 1. only exists if and
  2. <diagram>
  3. (non-commutative)

## Identity Matrix

<diagram>

## Inverse Matrix

|  |
| --- |

* 1. Singular:
  2. Non-Singular/Regular:

|  |
| --- |

To find :

* When then has a unique solution
* When then has either
  + Infinitely many solutions, or
  + No solutions

1. Solving a System of 2 Linear Equations with 2 Unknowns

| 16 STATISTICS |
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## Fundamental Theorem of Calculus

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## 

| 17 PERMUTATIONS AND COMBINATIONS |
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## Fundamental Theorem of Calculus

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## 

| 18 AN INTRODUCTION TO PROBABILITY |
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## Fundamental Theorem of Calculus

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## 

| 19 CONDITIONAL PROBABILITY |
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## Multiplication Rule

|  |
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## Independent Events

and are independent if and only if

| 20 DISCRETE RANDOM VARIABLES |
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## Expected Value of Random Variable

|  |
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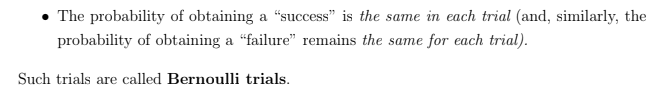
## Variance of a Random Variable

|  |
| --- |

## 

| 21 BERNOULLI TRIALS |
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## 



| 22 REVISION OF BINOMIAL, HYPERGEOMETRIC AND GEOMETRIC PROBABILITY DISTRIBUTIONS |
| --- |

## Binomial Distribution

* 1. =number of successes in sequence
  2. No conditions for order
  3. =probability of success (constant); given as percentage of large population

|  |
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* 1. Mean

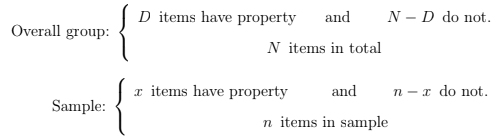
|  |
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* 1. Variance

|  |
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## 

## Hypergeometric Distribution

* 1. =number of items with a particular property in sample size
  2. Choosing **without replacement**
  3. No
  4. 

|  |
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* 1. Mean

|  |
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* 1. Variance

|  |
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## 

## Geometric Distribution

* 1. =number of failures **before/until** success
  2. No max
  3. =probability of success (constant); given as percentage of large population

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* 1. Mean

|  |
| --- |

* 1. Variance

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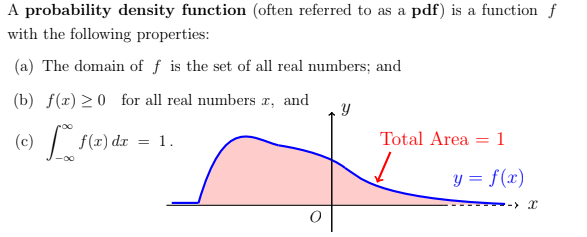
## 

## 

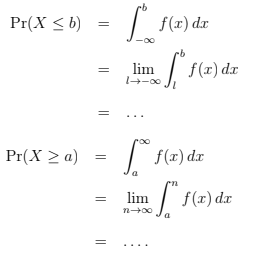
| 23 CONTINUOUS RANDOM VARIABLES |
| --- |

## 

## Probability Density Functions

* 1. 

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* 1. 

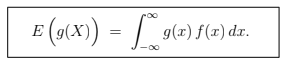
## Median



## Expected Value

|  |
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## Properties of Expected Value

* 1. 
     1. ^ Same for discrete random variables
  2. 
  3. 

## Variance





## Properties of Variance and Standard Deviation

1. 
   1. ^ same for discrete random variables

| 24 THE NORMAL DISTRIBUTION |
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## Fundamental Theorem of Calculus

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## 

| 25 STATISTICAL INFERENCE |
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## Population proportion

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## Sample proportion

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## 

## Random Variable for sample proportion

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## Approximating X

