

Matemática

1º ANO / ENSINO MÉDIO

E-Book – 1ª Edição



CAPITÃO GONDIN

Professor de Matemática



Apresentação

Caros Estudantes,

Ao elaborar este livro eletrônico, tive o propósito de tornar o estudo da Física Clássica mais acessível, agradável, dirigido e **gratuito**, para aqueles estudantes carentes, principalmente do ensino público, que não dispõem de condições financeiras para custear os seus estudos em grandes colégios particulares.

Neste livro eletrônico, os estudantes terão acesso gratuito às videoaulas, de maneira dirigida, de acordo com os temas, além de vários exercícios e comentários das seguintes matérias da Física Clássica: **Cinemática Escalar, Cinemática Angular, Cinemática Vetorial, Vetores, Dinâmica, Estática e Gravitação.**

Todas estas videoaulas deste livro eletrônico estão diretamente interconectadas, de forma direcionada, com o Canal de Ensino do Autor, no Youtube denominado: **‘Capitão Gondin Exatas’**. Esta nova proposta de ensino orientado, facilita a navegabilidade do aluno, de acordo com os temas e exercícios propostos de maneira didática.

Desejo a todos os Estudantes muito sucesso em suas jornadas! Como dizia nosso saudoso **Enéas Carneiro**: **“Só o conhecimento liberta!”**

CAPITÃO GONDIN
Professor de Matemática





Clique nas figuras!



**Siga-nos nas nossas
Redes Sociais!**

CAPITÃO GONDIN
Professor de Matemática



APOIO CULTURAL

ESPAÇO PUBLICITÁRIO

**Empresário, apoie o nosso
Projeto de Ensino gratuito,
para alunos carentes!**

Muito Obrigado!

CAPITÃO GONDIN
Professor de Matemática



Histórico do Autor

Perfil Profissional:

Sou Capitão de Carreira da Reserva Remunerada da Aeronáutica, desde 1985.

Formação

- A) Curso de Formação de Sargento-CFS (1985);
- B) Curso de Aperfeiçoamento de Sargentos - CAS (2003);
- C) Curso de Aperfeiçoamento de Oficiais da Aeronáutica - QEOA - 2006;
- D) Bacharel em Ciências Contábeis (2017);
- E) Pós-Graduando/MBA em Finanças e Controladoria (2018);
- F) Pós-Graduação/MBA em Auditoria e Perícia Contábil (2018);
- G) Graduação de Licenciatura em Física (2025); e
- B) Graduação de Licenciatura em Matemática (2025);

CAPITÃO GONDIN
Professor de Matemática



SUMÁRIO

UNIDADE 01: Conjunto

- 01) Teoria dos Conjuntos
- 02) Operações com Conjuntos
- 03) Conjunto dos $\mathbb{N}^\circ$ Naturais & Inteiros
- 04) Adição e Subtração no Conjunto $\mathbb{N}$
- 05) Potenciação e Radiciação no Conjunto $\mathbb{N}$
- 06) Potenciação e Raiz Quadrada em $\mathbb{Q}$
- 07) Conjunto dos Números Inteiros Relativos
- 08) Conjunto dos Números Racionais Relativos
- 09) Equações do 1º Grau



SUMÁRIO

UNIDADE 01: Conjunto

09) Equações do 1º Grau

10) Inequações do 1º Grau – 01 Variável

11) Sistema de Equação do 1º Grau- 02 Variáveis

UNIDADE 02: Função

01) Noções Básicas de Funções

02) Análise de uma Função

03) Gráfico de Função Afim

04) Equação da Reta de uma Função Afim



SUMÁRIO

UNIDADE 02: Função

01) Noções Básicas de Funções

02) Análise de uma Função

03) Gráfico de Função Afim

04) Equação da Reta de uma Função Afim

05) Estudo Sinal da Função Afim

06) Módulo de um Número Real

07) Equação Modular

08) Produtos Notáveis

09) Equação do 2º Grau



SUMÁRIO

UNIDADE 02: Função

- 10) Função Quadrática Características e Definição
- 11) Gráfico de uma Função Quadrática
- 12) Vértice da Parábola
- 13) Mínimo e Máximo de uma Função Quadrática
- 14) Estudo do Sinal de uma Função Quadrática

UNIDADE 03: Geometria

- 01) Teorema de Tales
- 02) Semelhança de Polígonos
- 03) Semelhança de Triângulos
- 04) Relações Métricas de um Triângulo Retângulo



SUMÁRIO

UNIDADE 03: Geometria

03) Semelhança de Triângulos

04) Relações Métricas de um Triângulo Retângulo



UNIDADE 01:

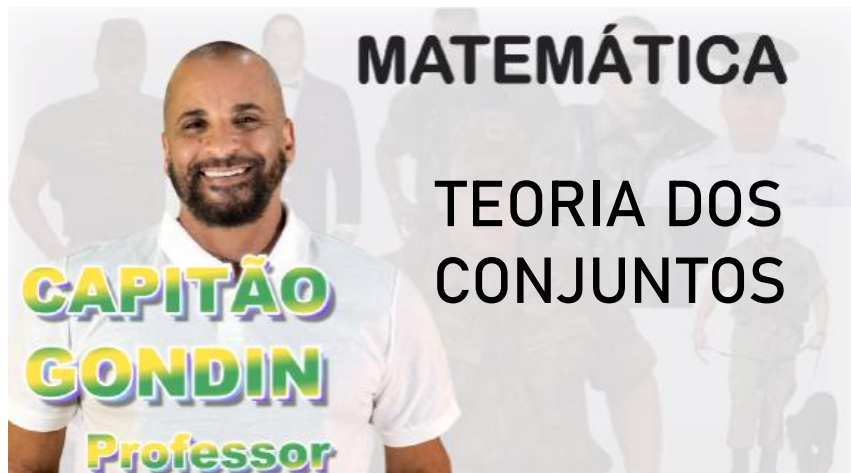
Conjunto

CAPITÃO GONDIN
Professor de Física



UNIDADE 01: Conjunto

01) Teoria dos Conjuntos

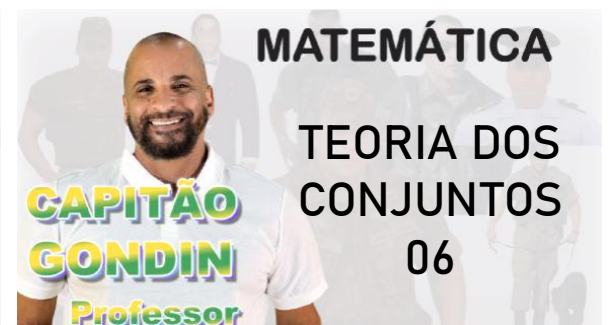
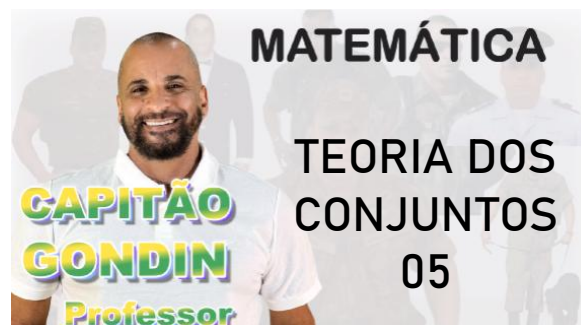
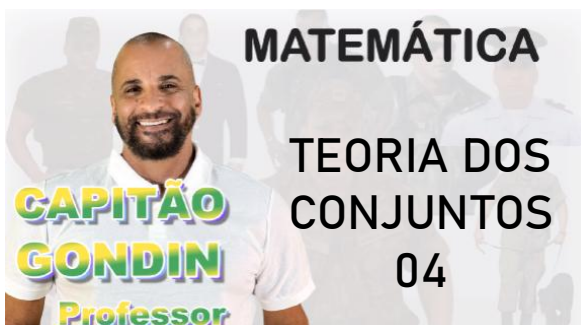
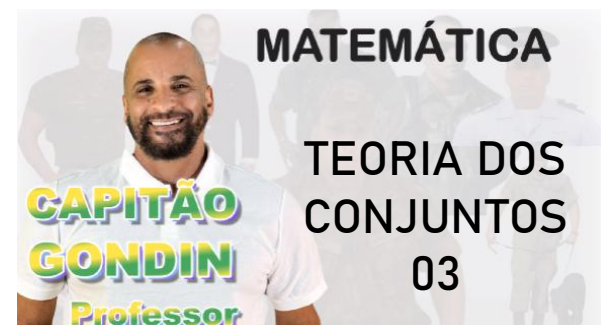
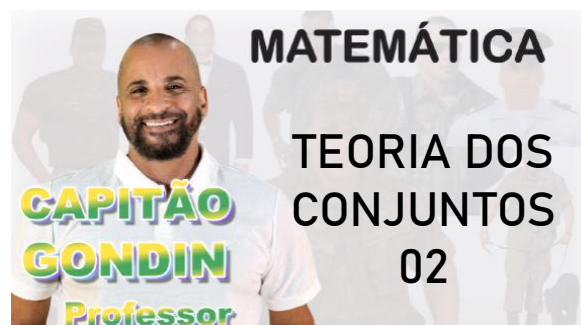
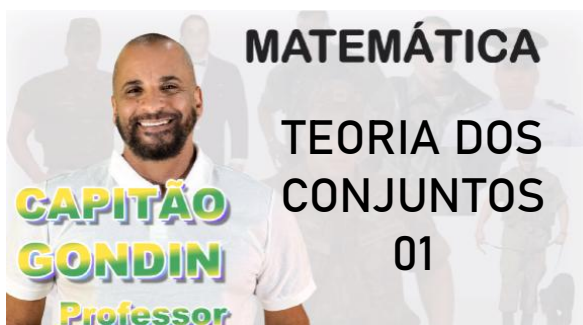


Assista as aulas!

Clique nas figuras!

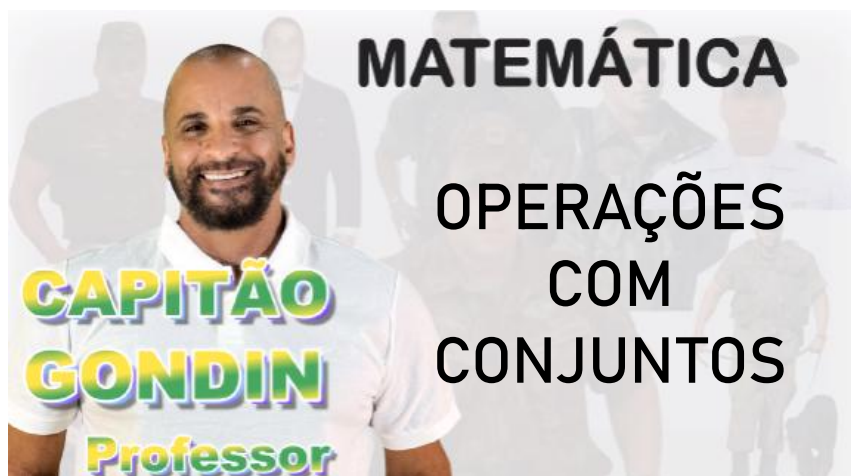


EXERCÍCIOS



UNIDADE 01: Conjunto

02) Operações com Conjuntos

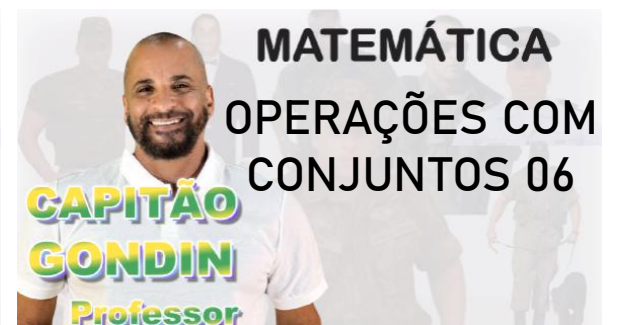
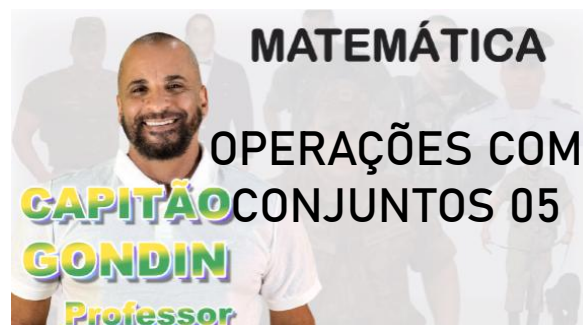
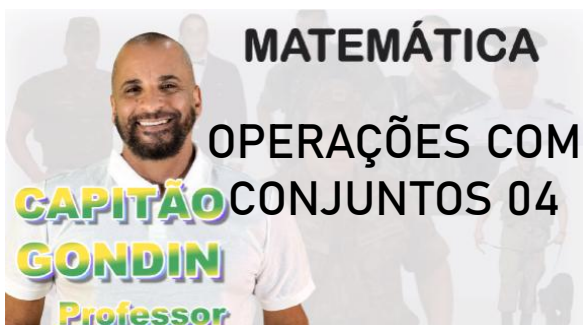
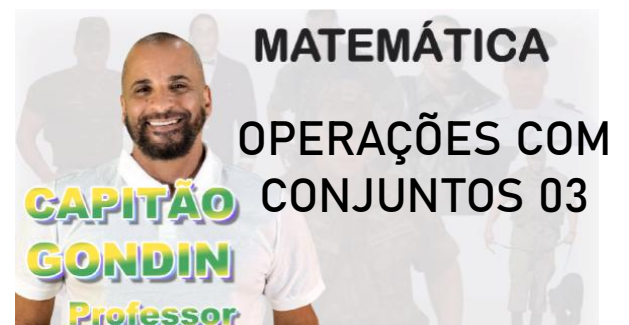
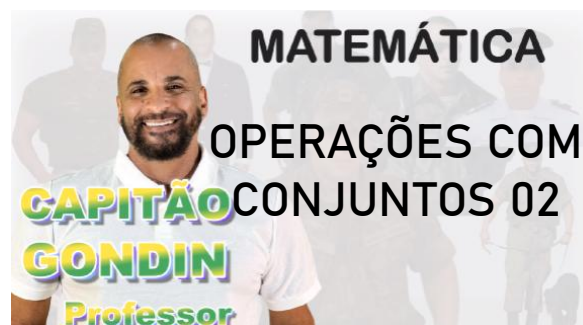
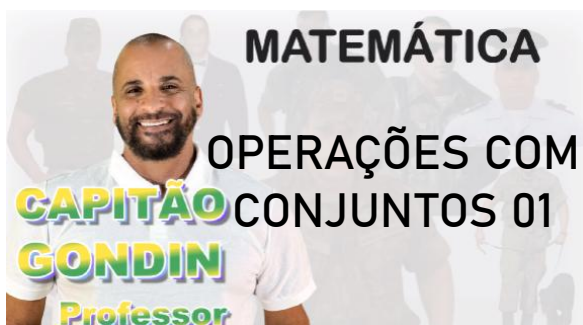


Assista as aulas!

Clique nas figuras!

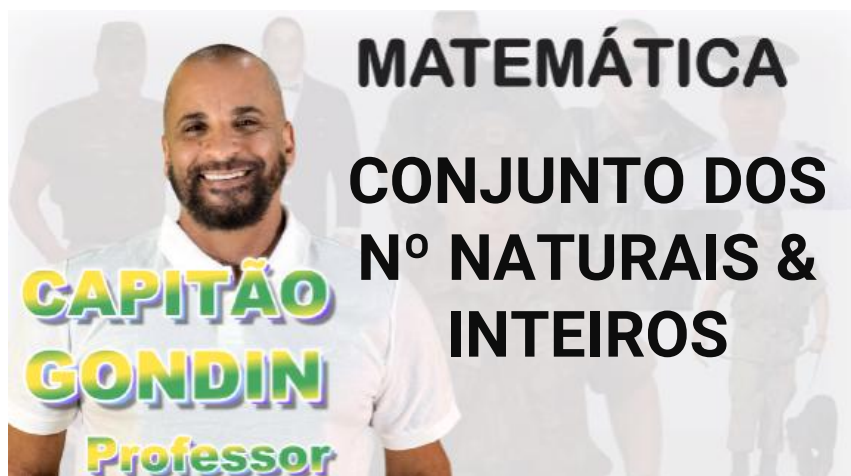


EXERCÍCIOS



UNIDADE 01: Conjunto

03) Conjunto dos $\mathbb{N}^{\circ}$ Naturais & Inteiros

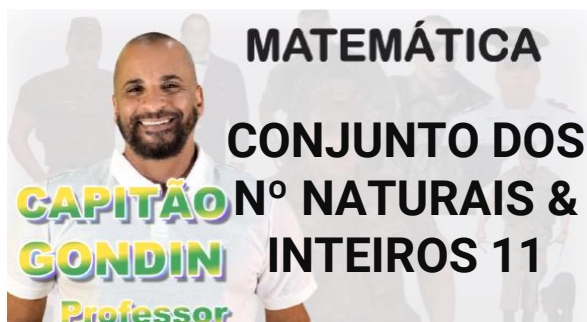
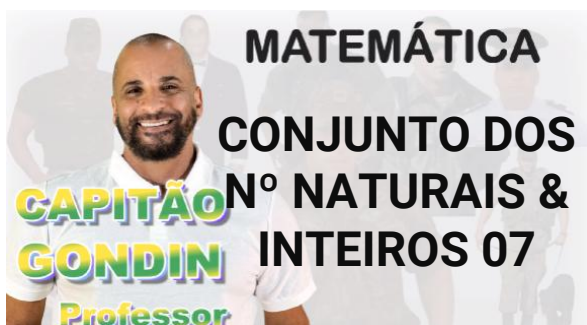
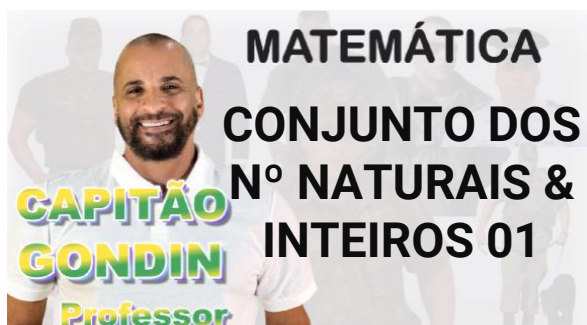


Assista as aulas!

Clique nas figuras!

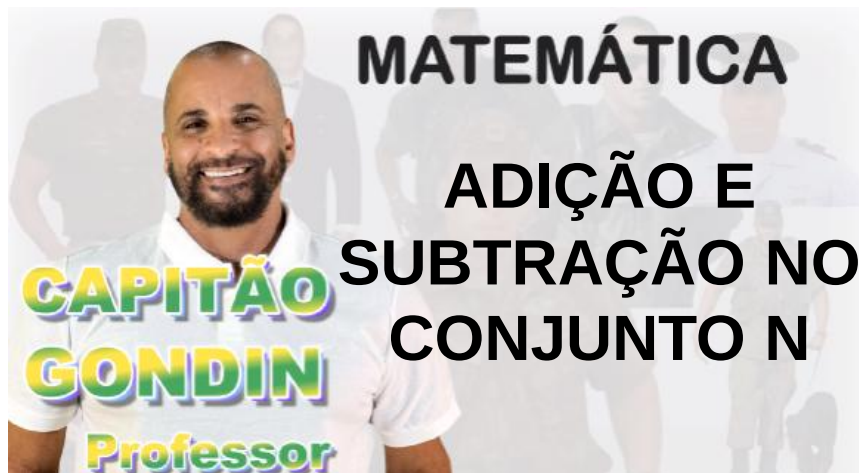


EXERCÍCIOS



UNIDADE 01: Conjunto

04) Adição e Subtração no Conjunto N

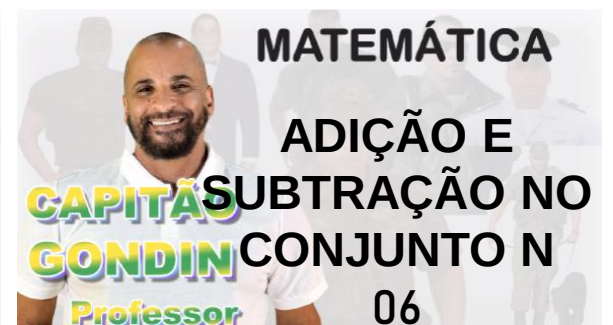
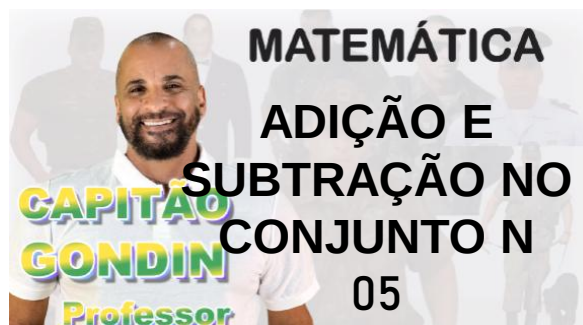
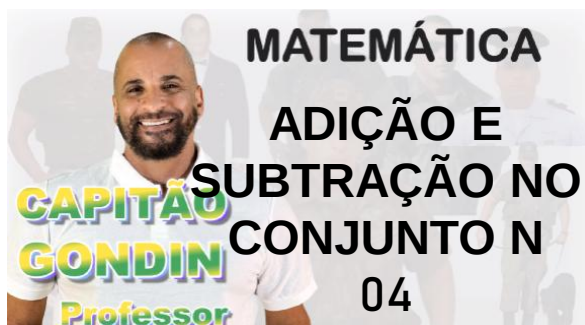
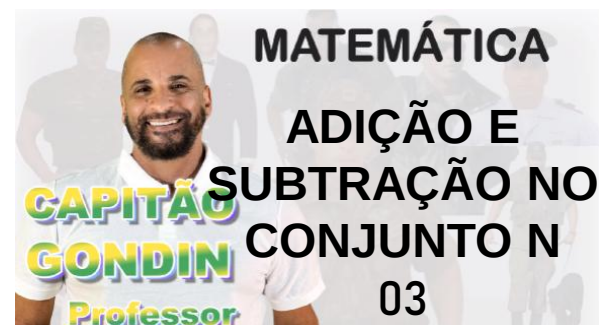
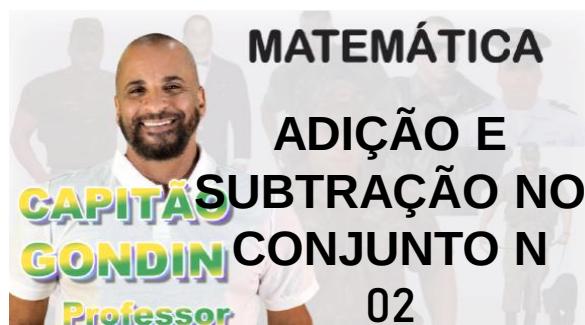
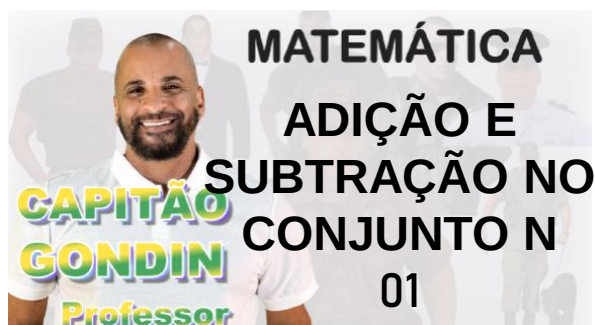


Assista as aulas!

Clique nas figuras!

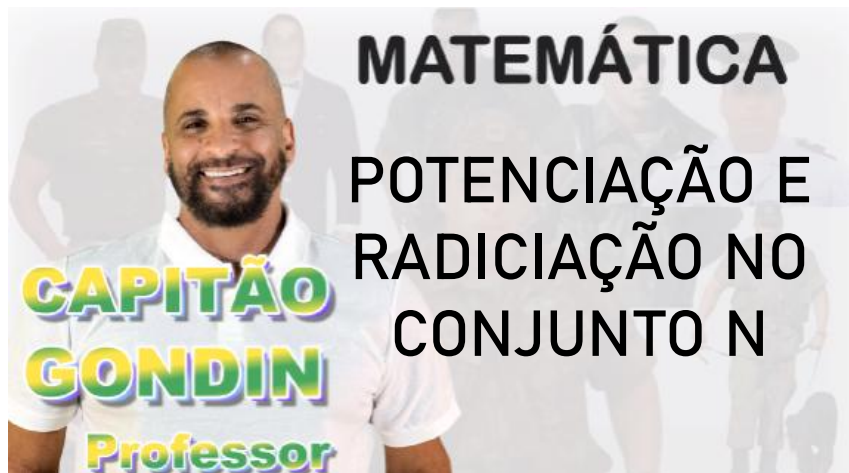


EXERCÍCIOS



UNIDADE 01: Conjunto

05) Potenciação e Radiciação no Conjunto N

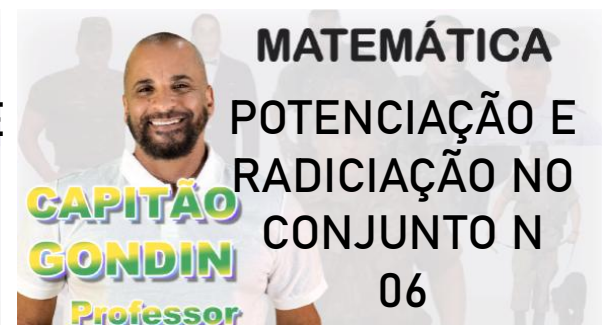
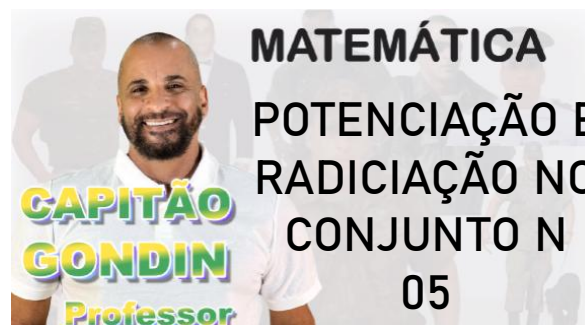
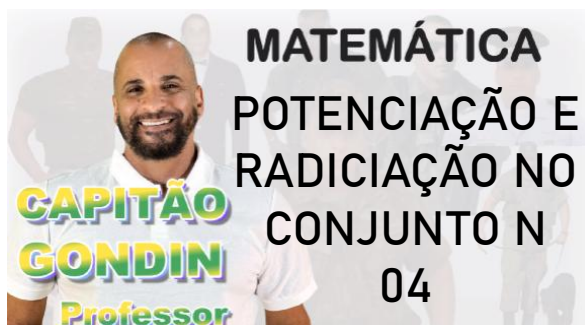
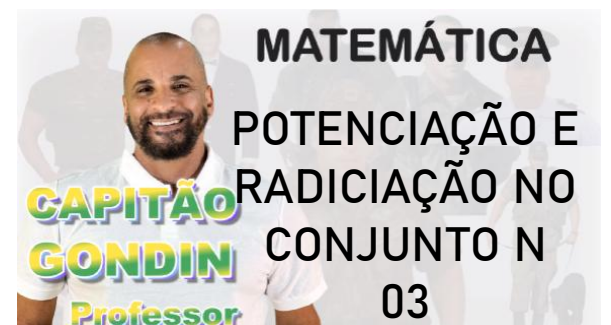
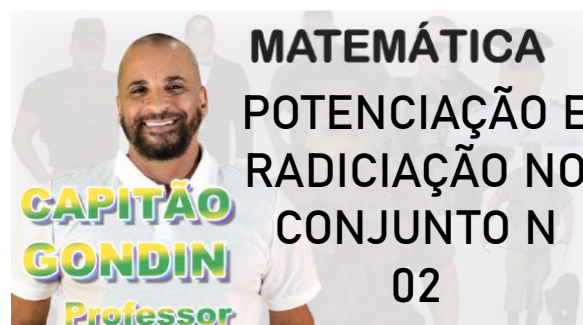
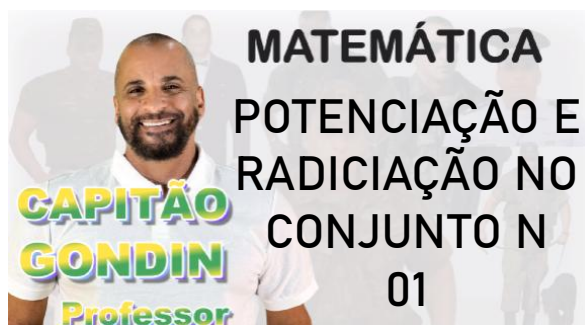


Assista as aulas!

Clique nas figuras!

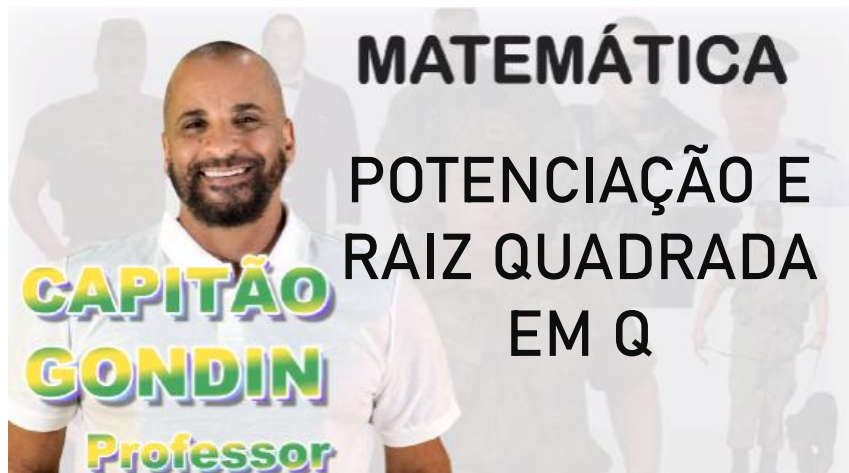


EXERCÍCIOS



UNIDADE 01: Conjunto

06) Potenciação e Raiz Quadrada em Q

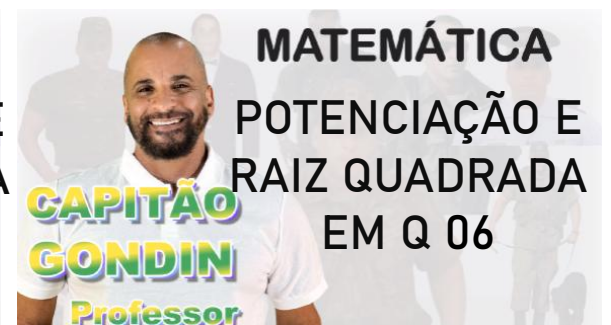
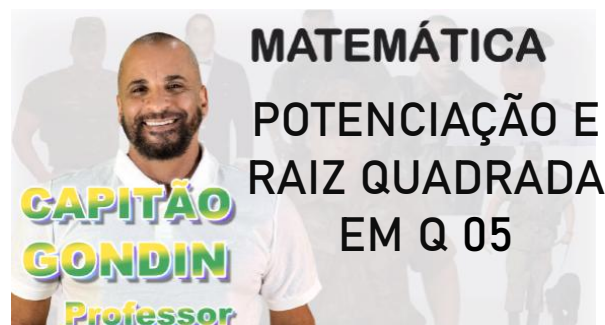
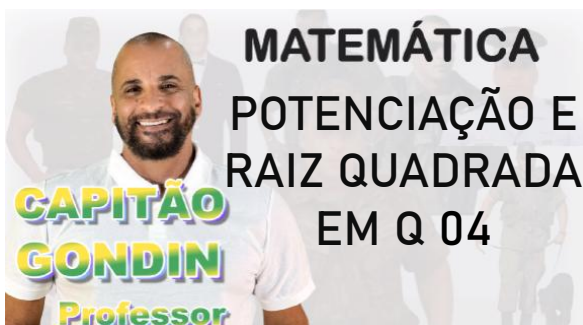
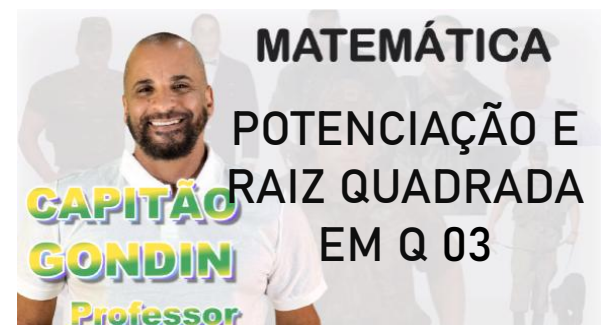
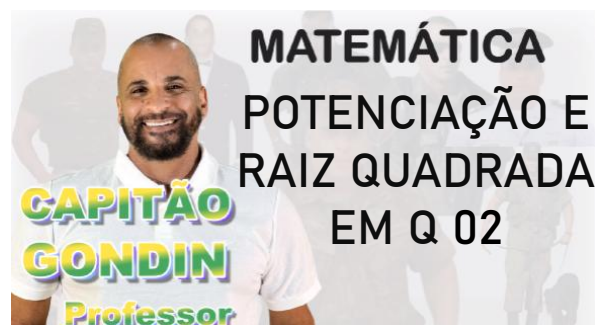
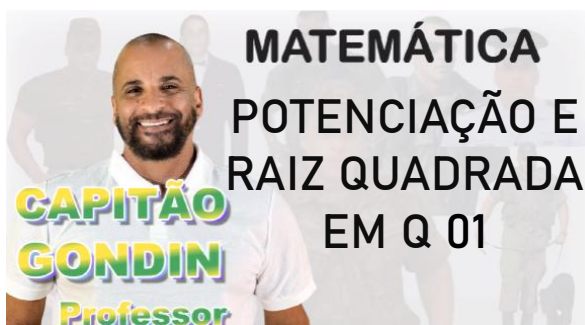


Assista as aulas!

Clique nas figuras!

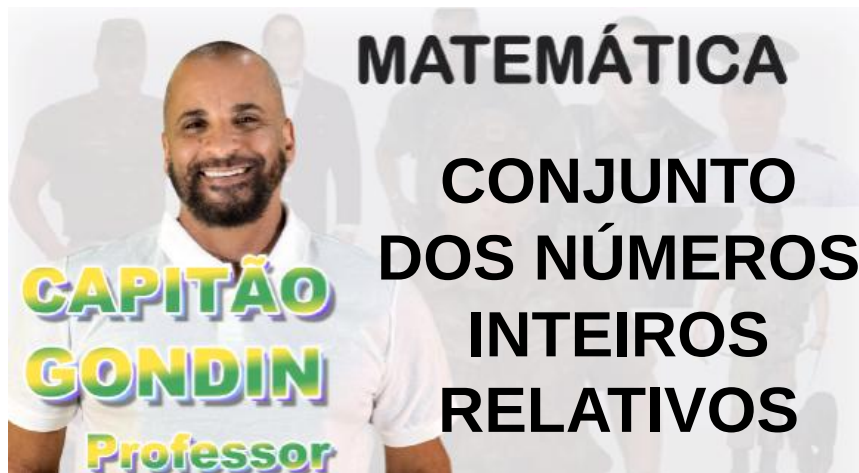


EXERCÍCIOS



UNIDADE 01: Conjunto

07) Conjunto dos Números Inteiros Relativos

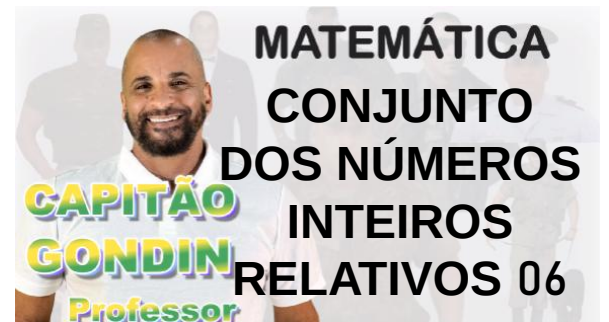
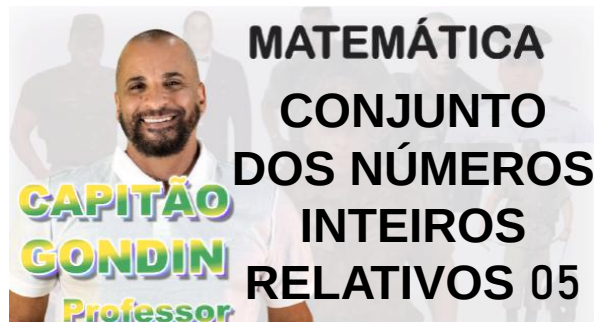
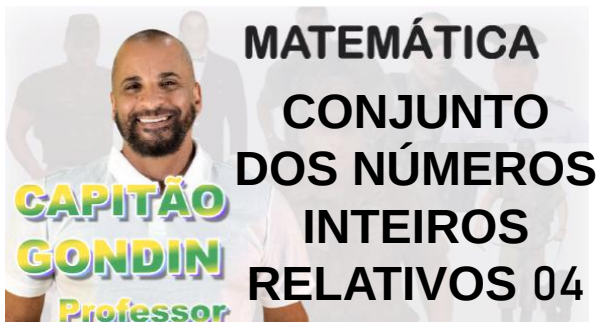
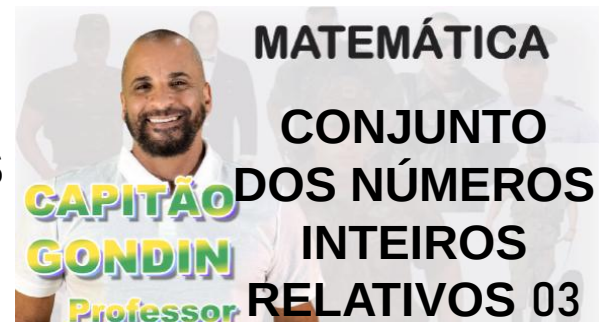
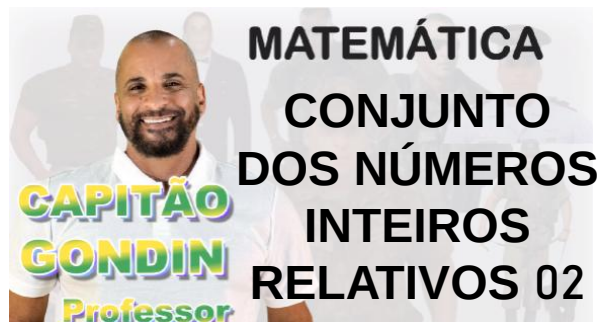
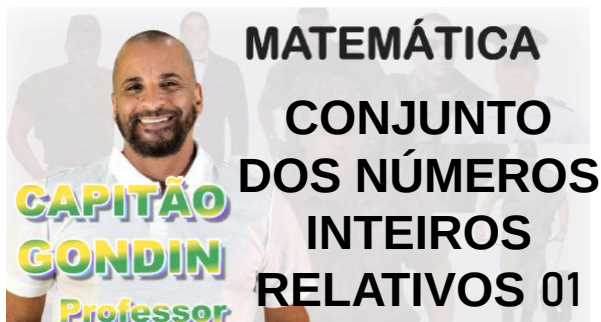


Assista as aulas!

Clique nas figuras!

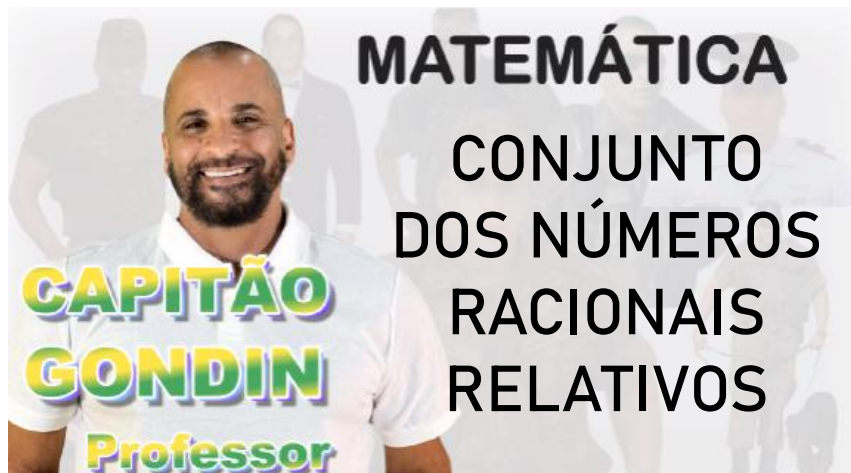


EXERCÍCIOS



UNIDADE 01: Conjunto

08) Conjunto dos Números Racionais Relativos

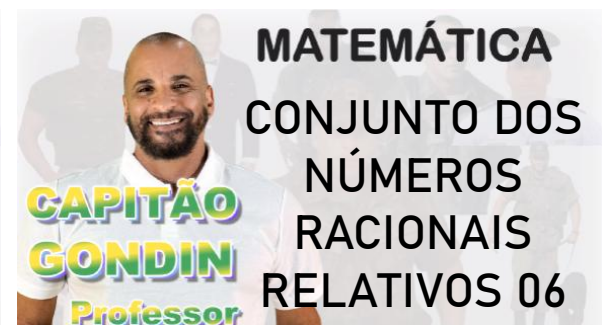
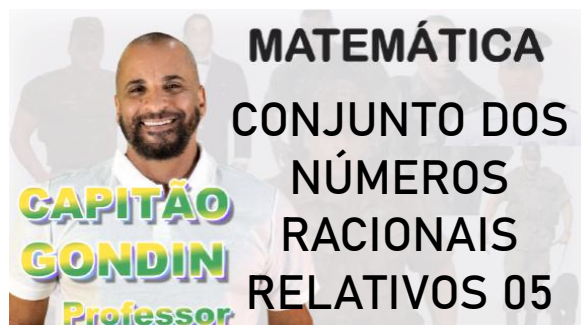
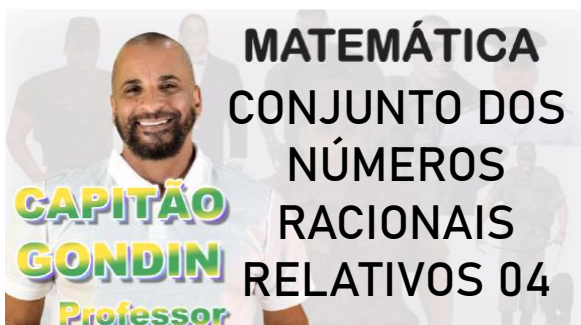
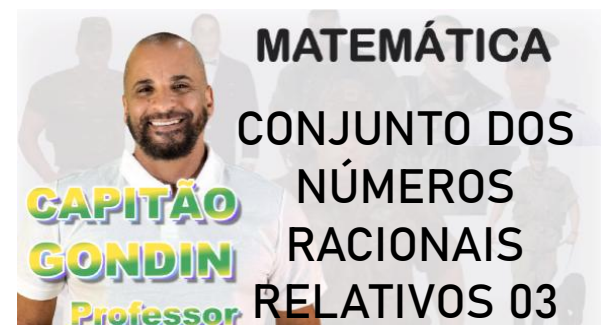
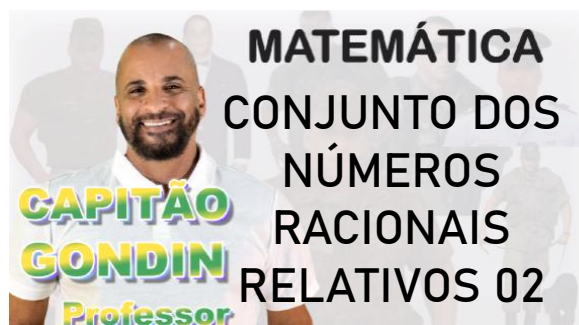
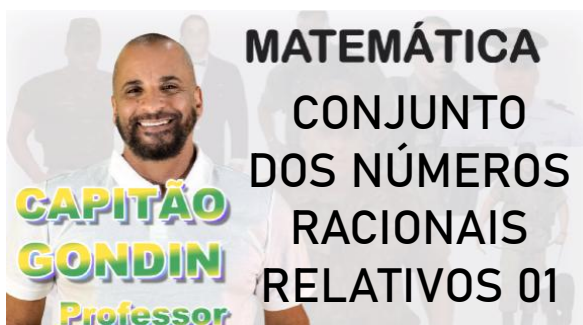


Assista as aulas!

Clique nas figuras!

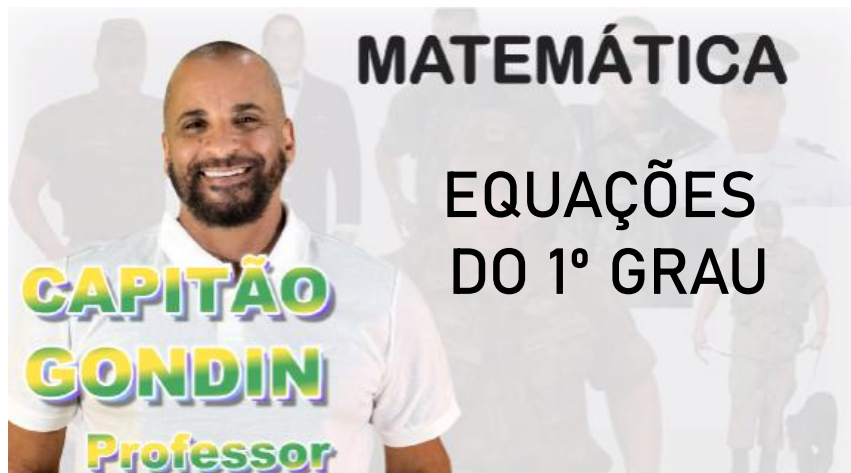


EXERCÍCIOS



UNIDADE 01: Conjunto

09) Equações do 1º Grau

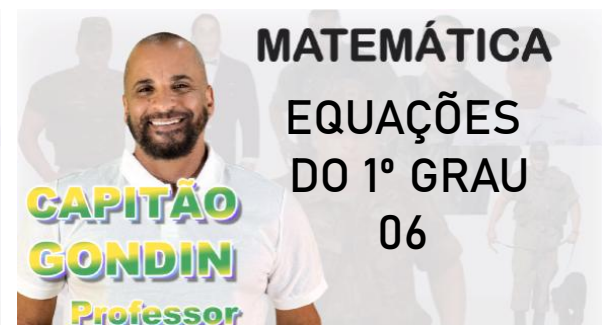
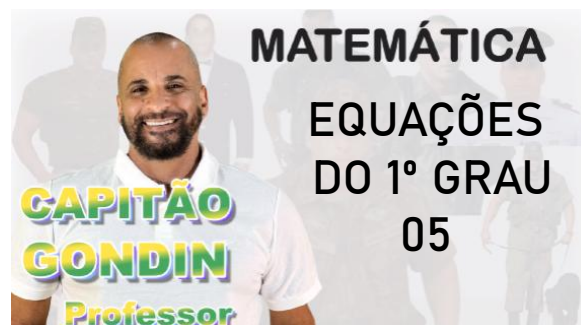
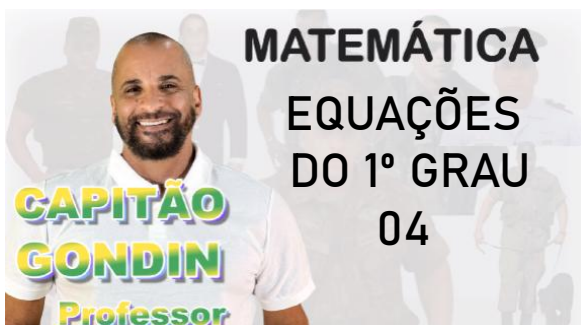
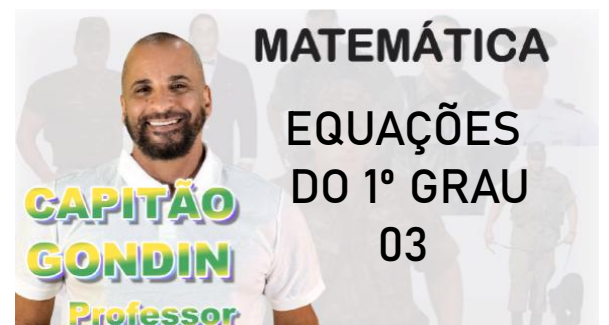
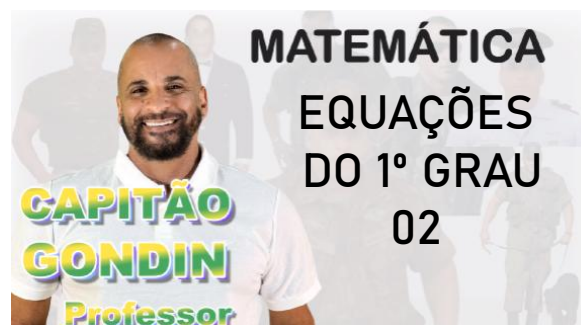
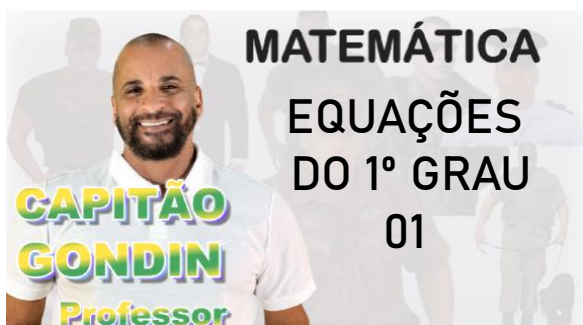


Assista as aulas!

Clique nas figuras!

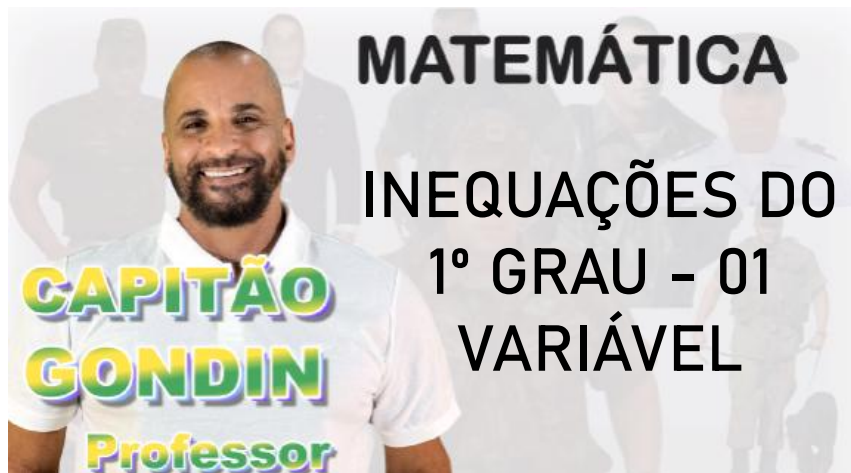


EXERCÍCIOS



UNIDADE 01: Conjunto

10) Inequações do 1º Grau - 01 Variável

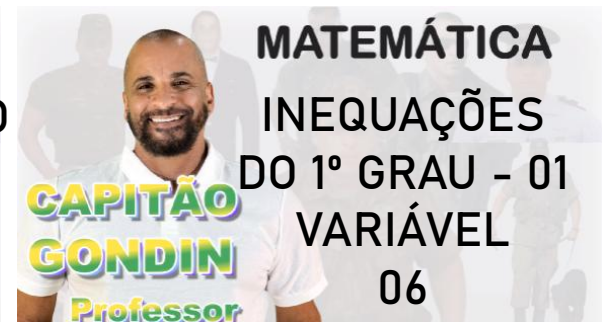
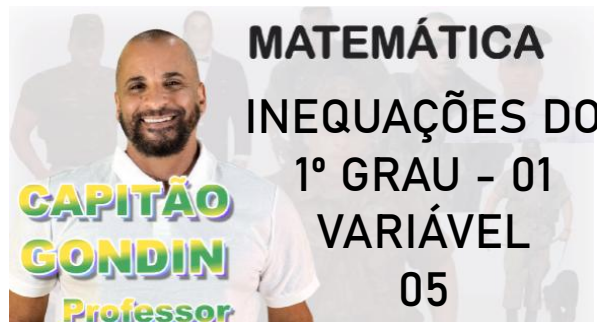
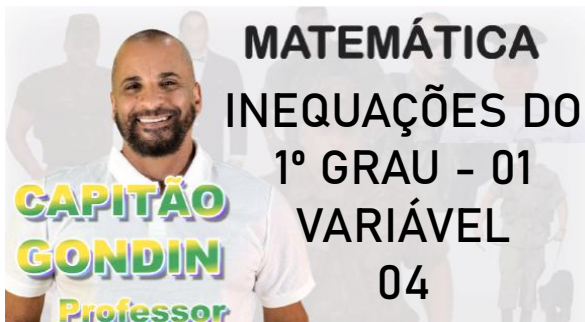
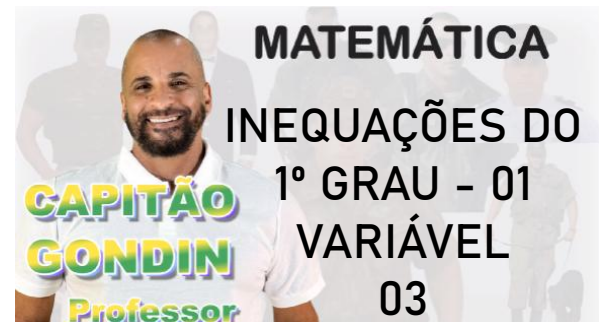
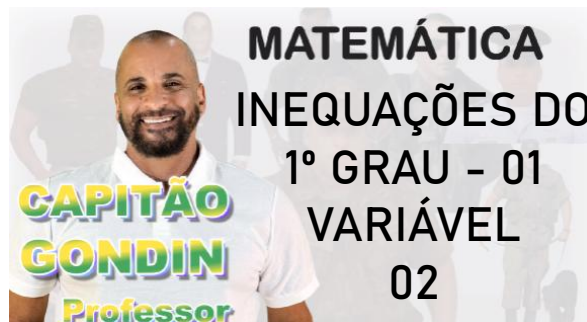
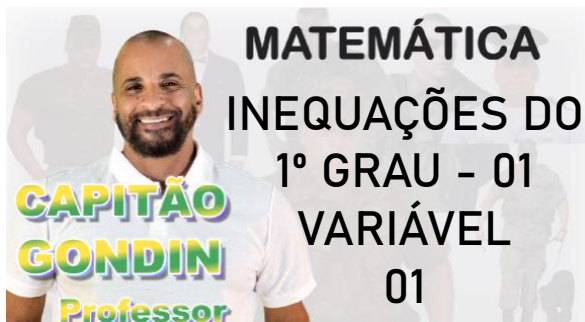


Assista as aulas!

Clique nas figuras!

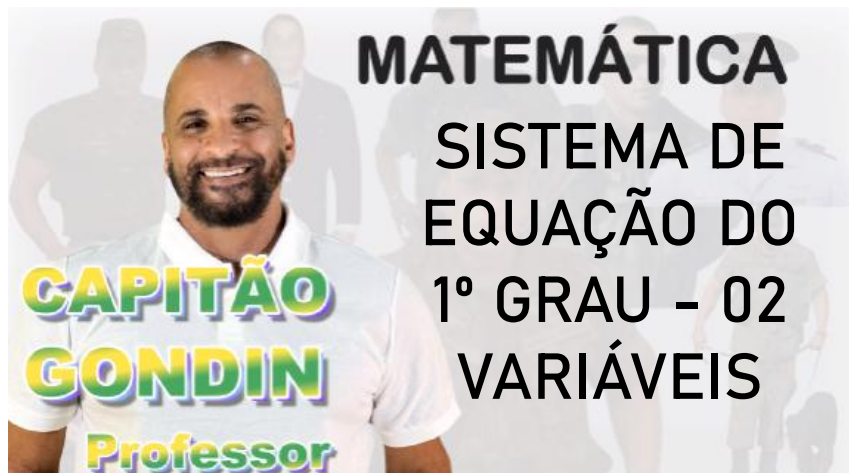


EXERCÍCIOS



UNIDADE 01: Conjunto

11) Sistema de Equação do 1º Grau- 02 Variáveis

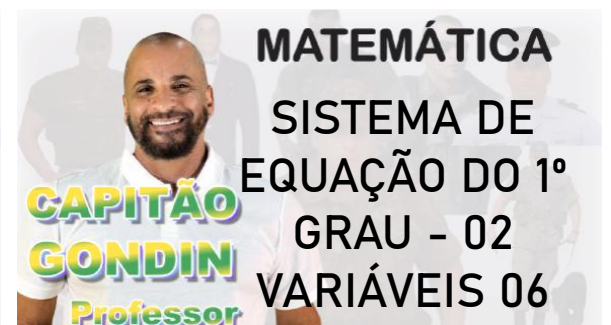
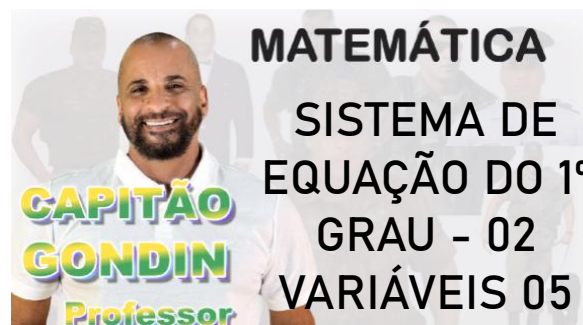
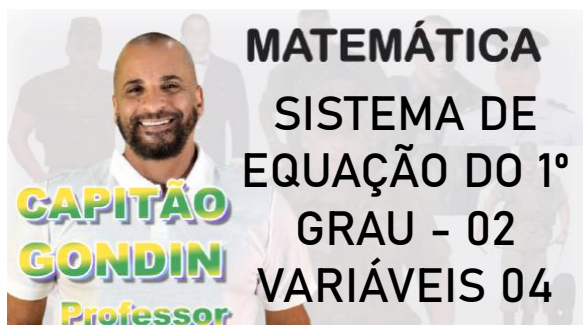
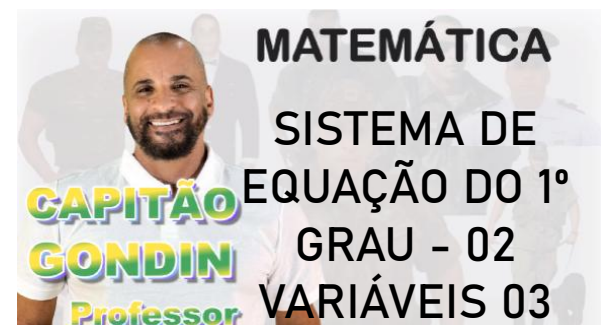
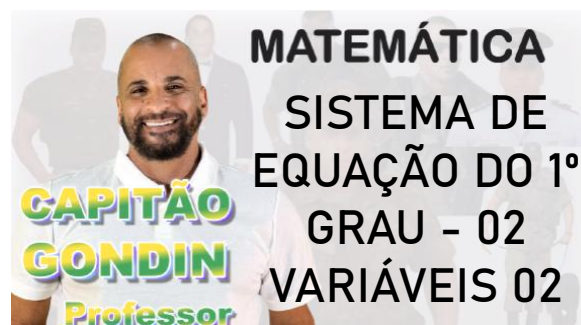
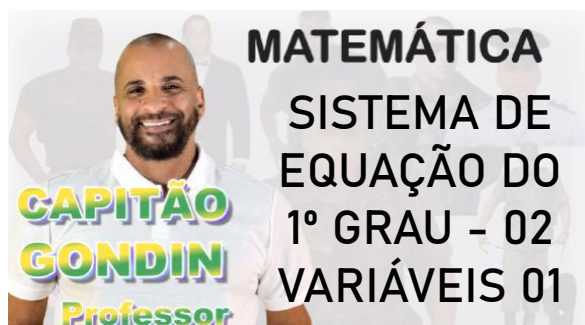


Assista as aulas!

Clique nas figuras!



EXERCÍCIOS



UNIDADE 02:

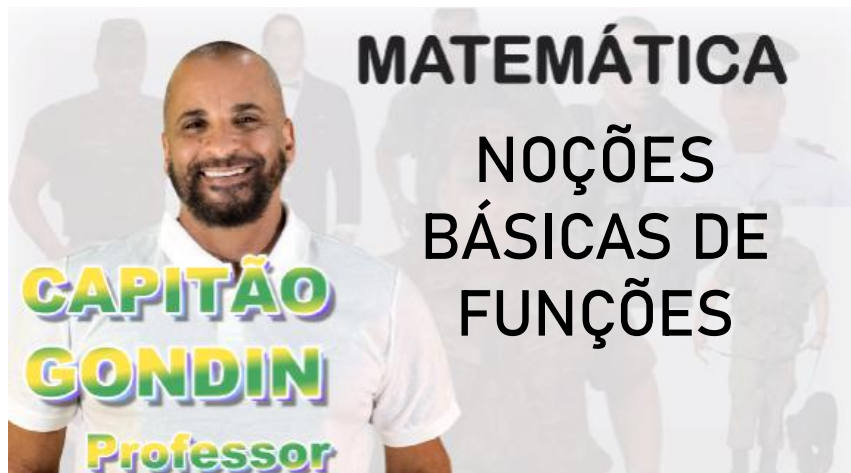
Função

CAPITÃO GONDIN
Professor de Física



UNIDADE 02: Função

01) Noções Básicas de Funções

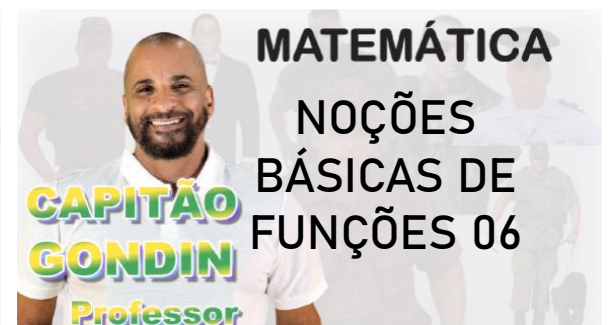
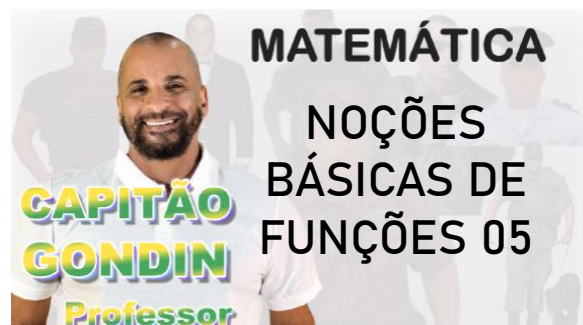
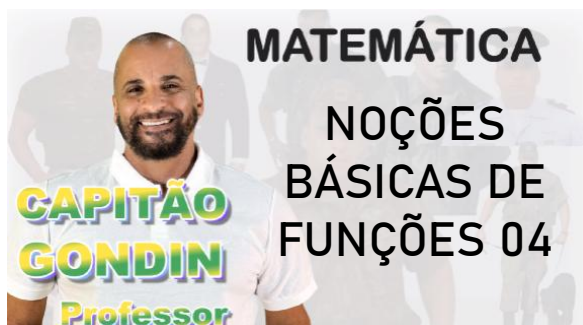
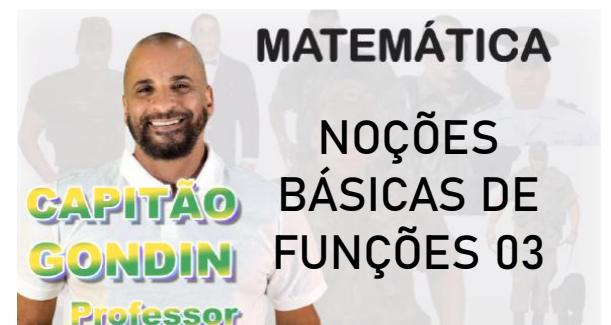
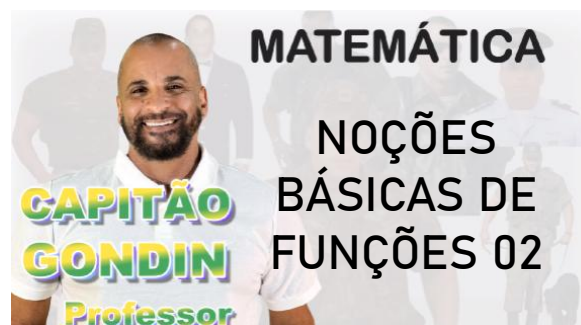
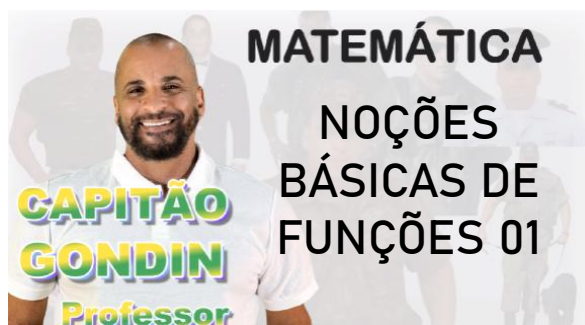


Assista as aulas!

Clique nas figuras!

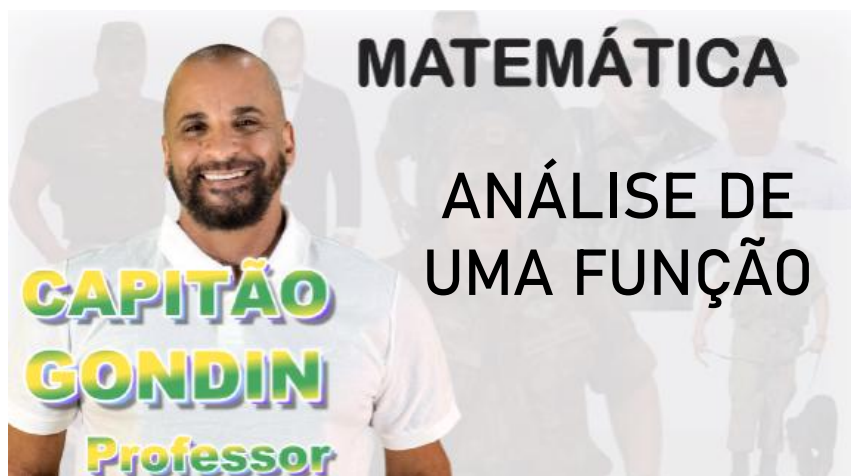


EXERCÍCIOS



UNIDADE 02: Função

02) Análise de uma Função

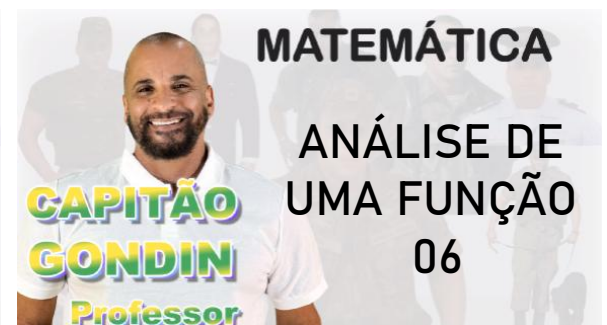
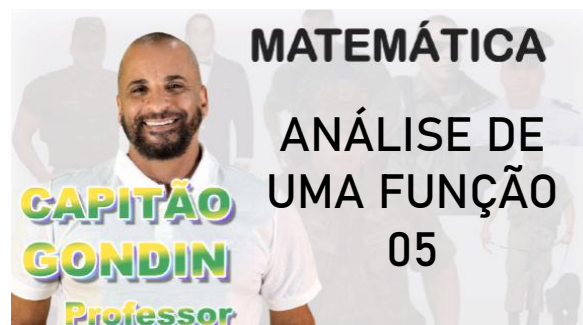
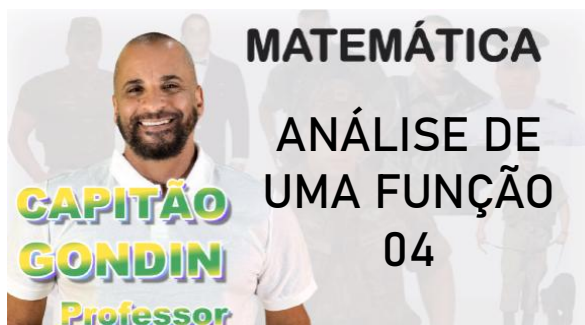
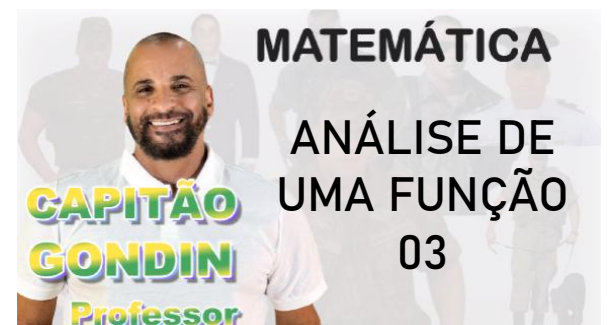
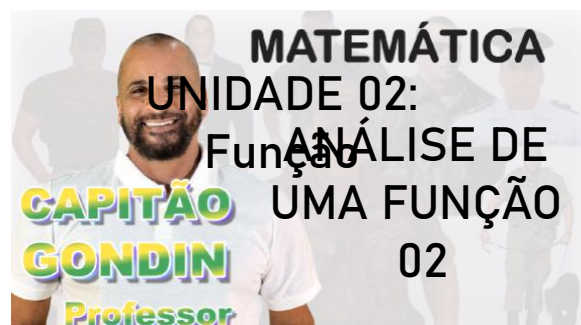
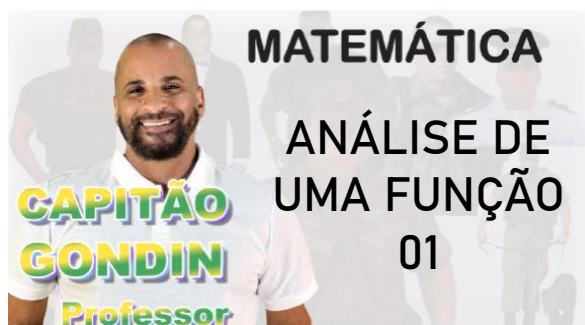


Assista as aulas!

Clique nas figuras!



EXERCÍCIOS



UNIDADE 02: Função

03) Gráfico de Função Afim

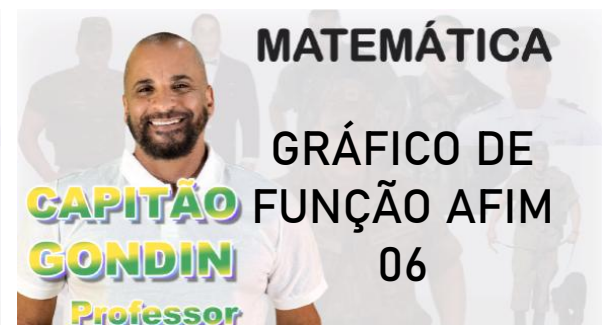
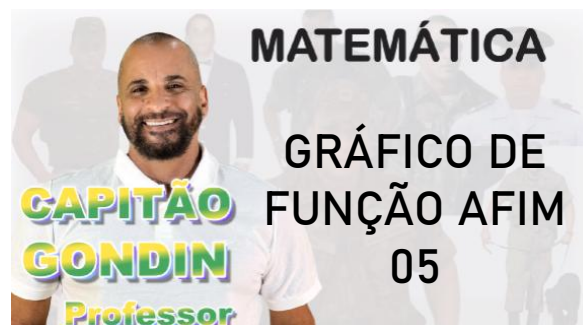
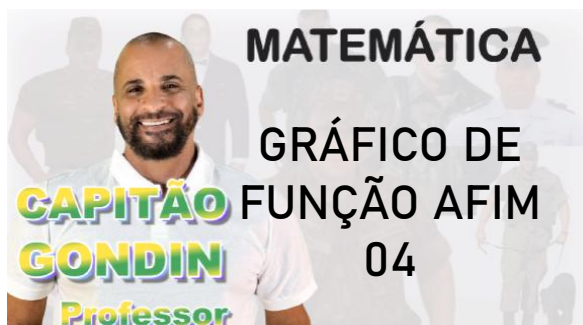
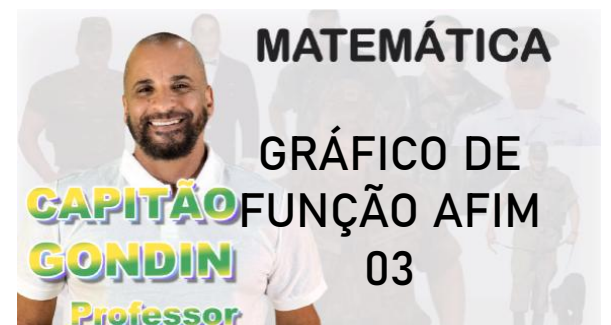
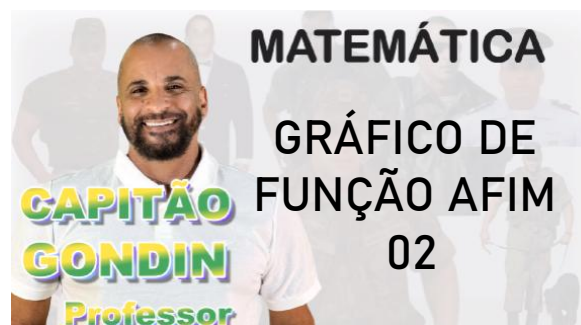
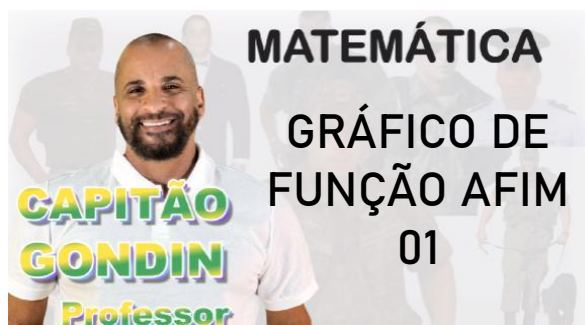


Assista as aulas!

Clique nas figuras!

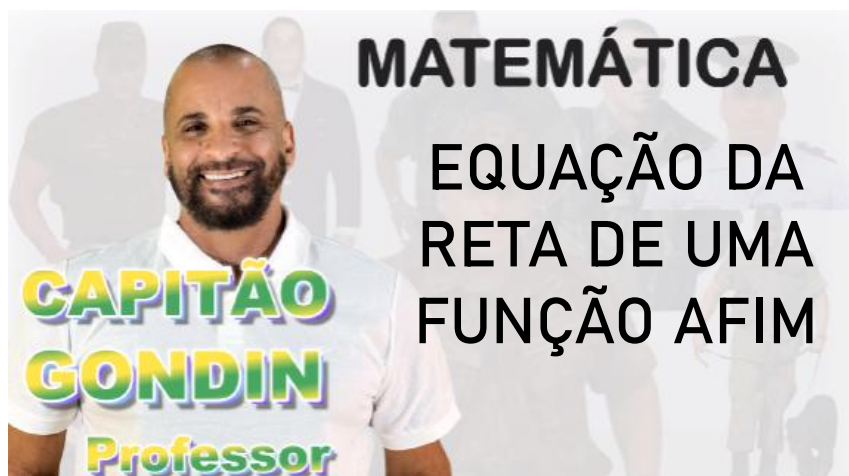


EXERCÍCIOS



UNIDADE 02: Função

04) Equação da Reta de uma Função Afim

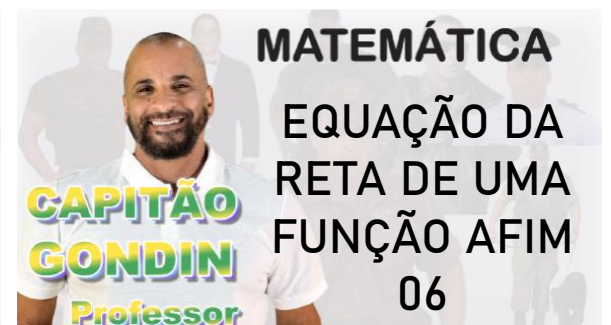
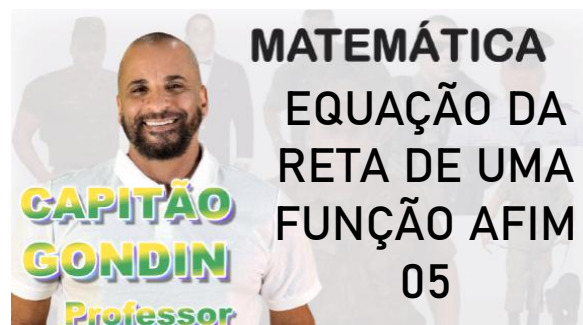
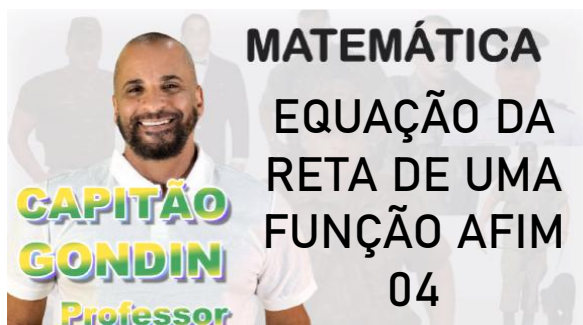
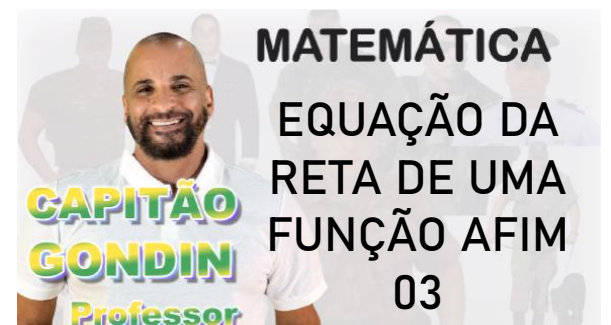
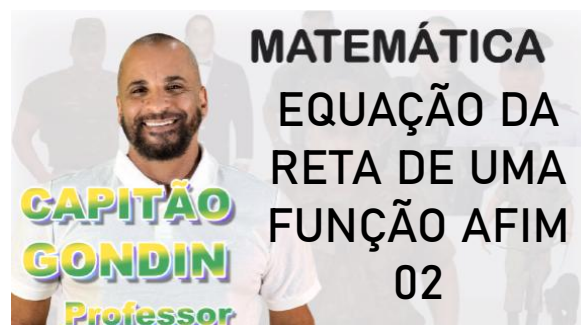
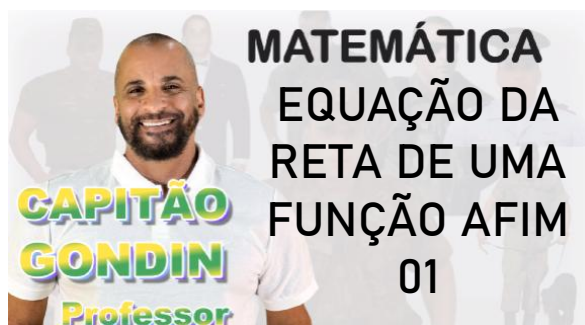


Assista as aulas!

Clique nas figuras!

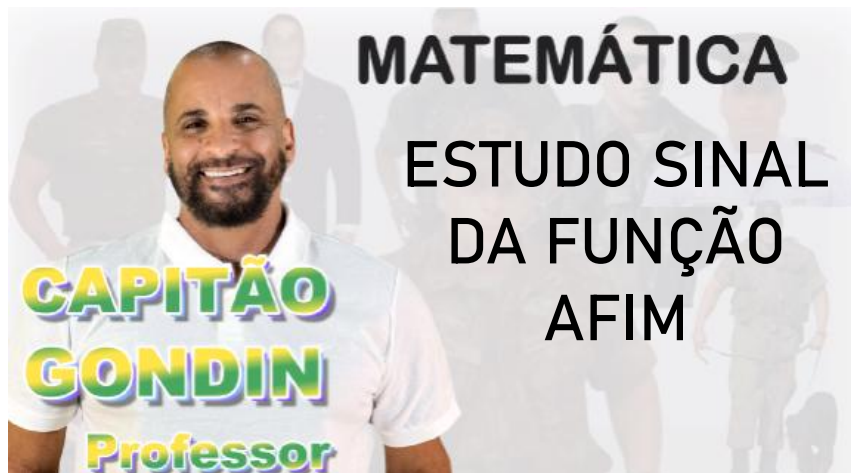


EXERCÍCIOS



UNIDADE 02: Função

05) Estudo Sinal da Função Afim

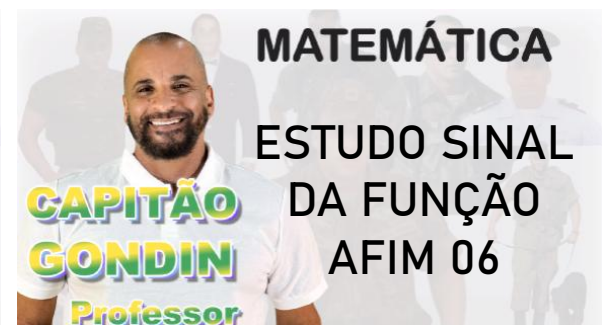
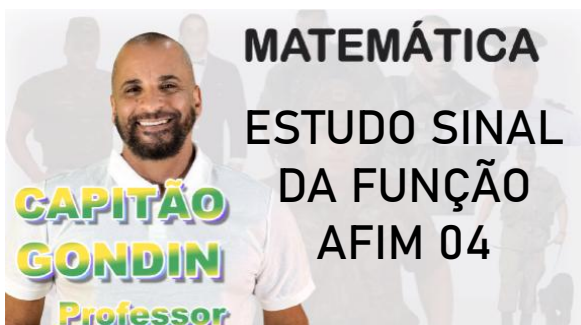


Assista as aulas!

Clique nas figuras!

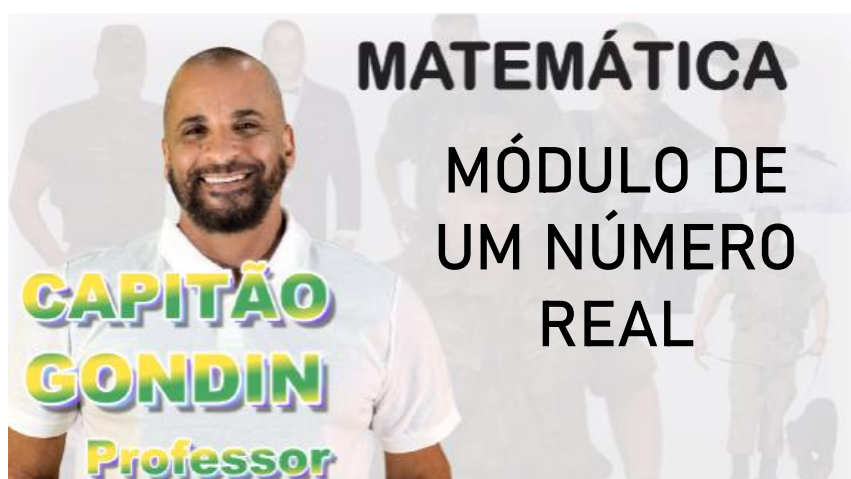


EXERCÍCIOS



UNIDADE 02: Função

06) Módulo de um Número Real

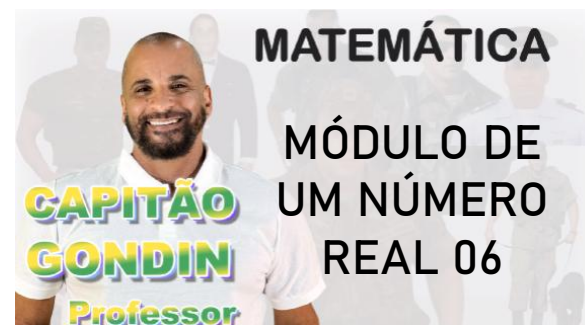
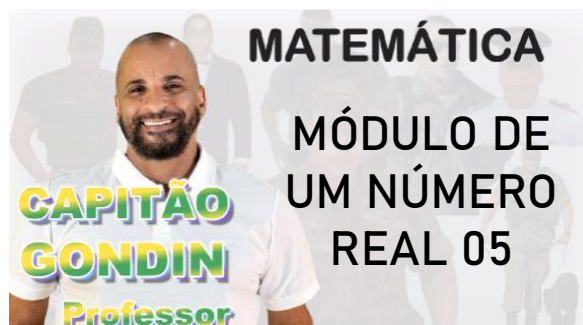
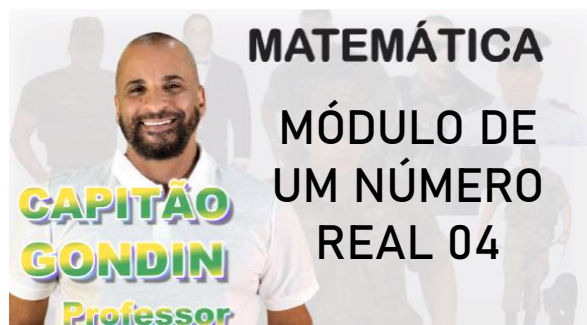
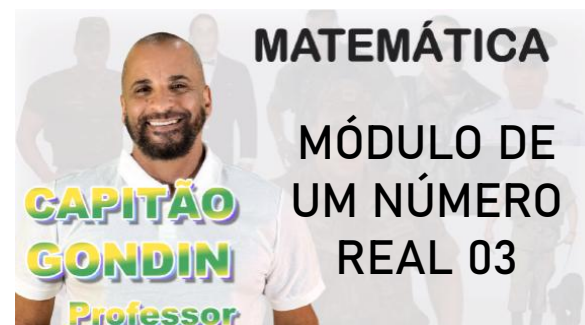
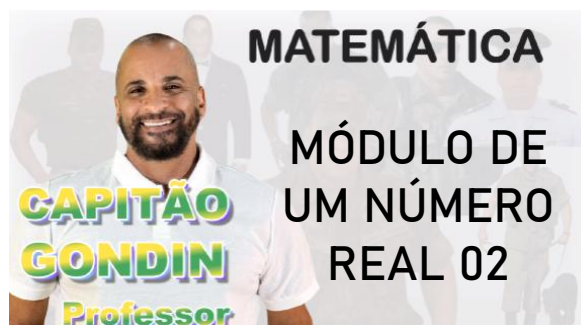
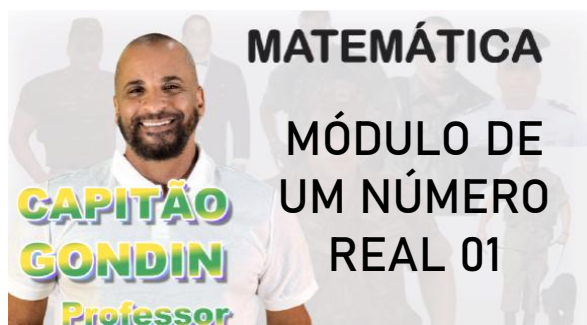


Assista as aulas!

Clique nas figuras!

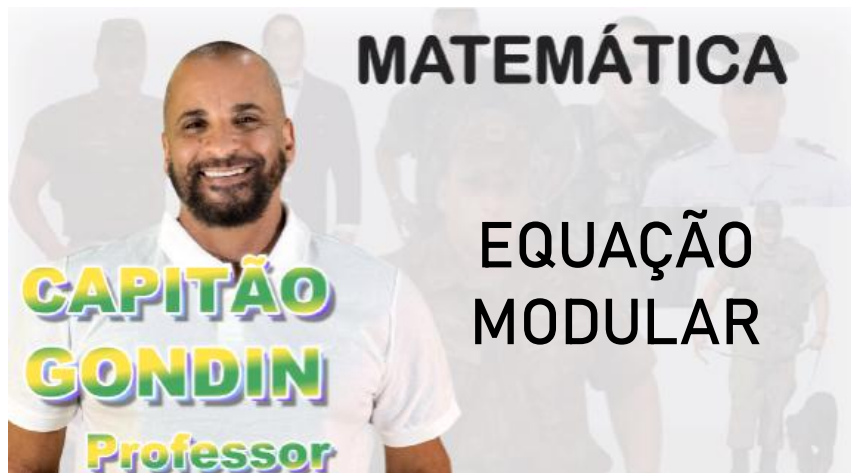


EXERCÍCIOS



UNIDADE 02: Função

07) Equação Modular

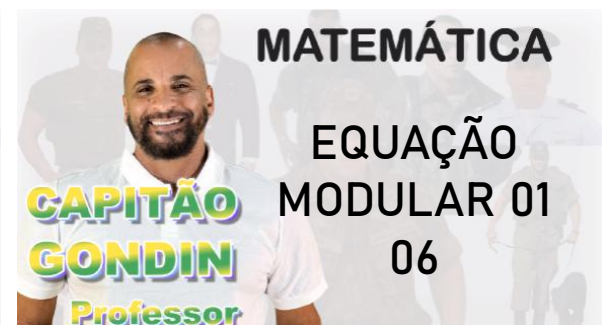
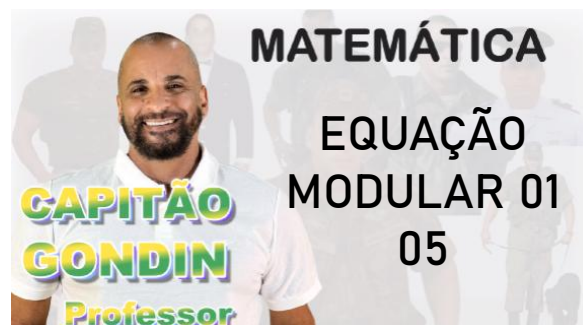
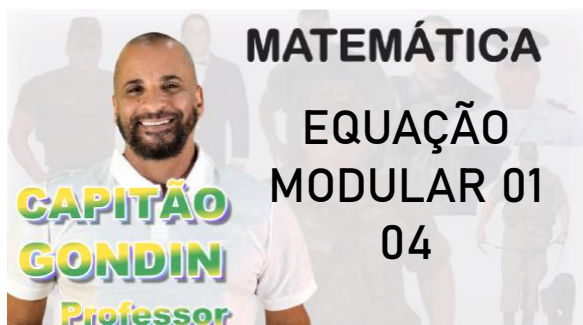
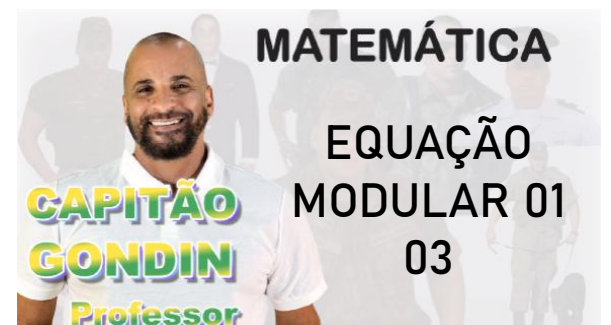
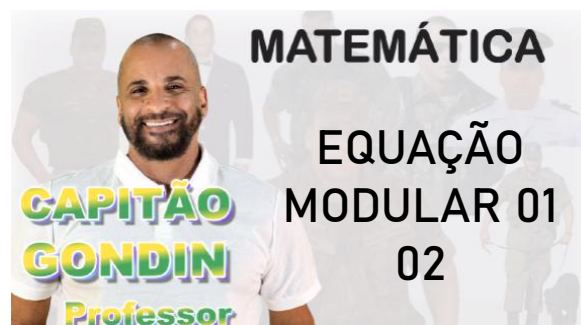
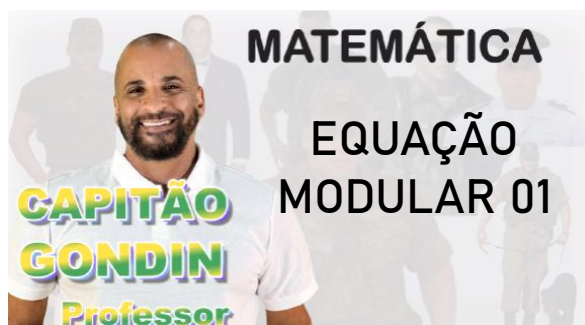


Assista as aulas!

Clique nas figuras!



EXERCÍCIOS



UNIDADE 02: Função

08) Produtos Notáveis

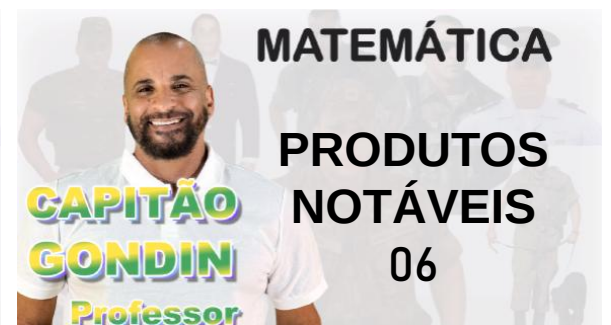
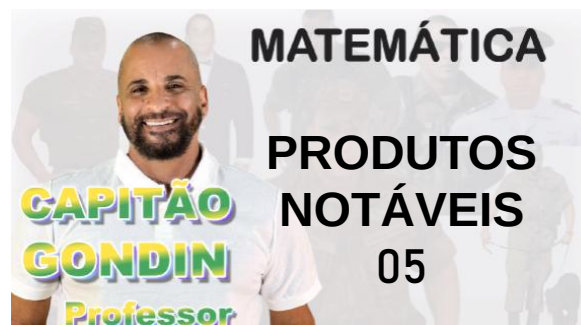
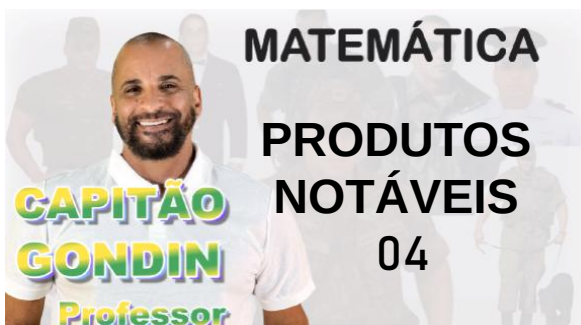
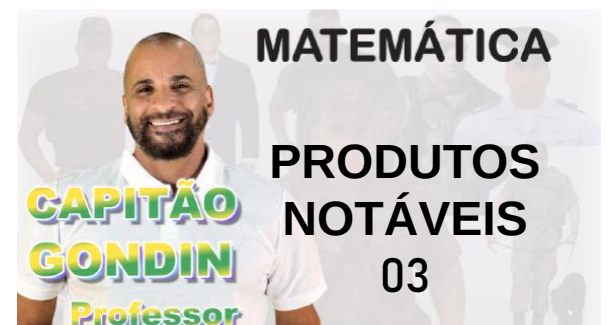
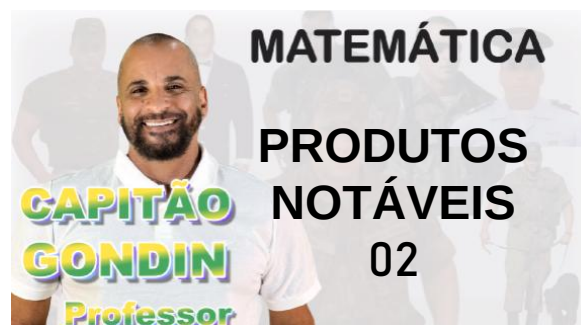
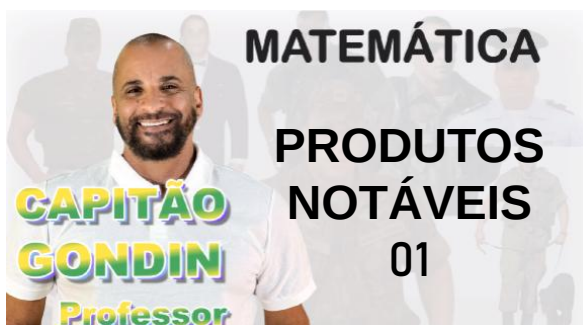


Assista as aulas!

Clique nas figuras!

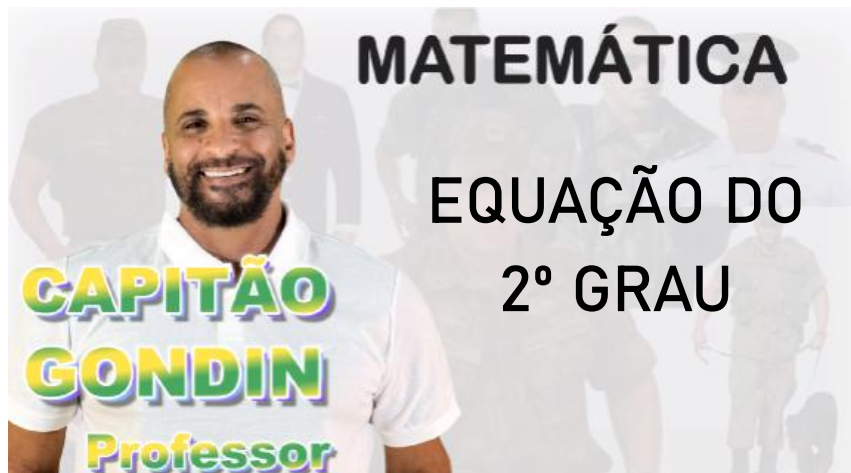


EXERCÍCIOS



UNIDADE 02: Função

09) Equação do 2º Grau

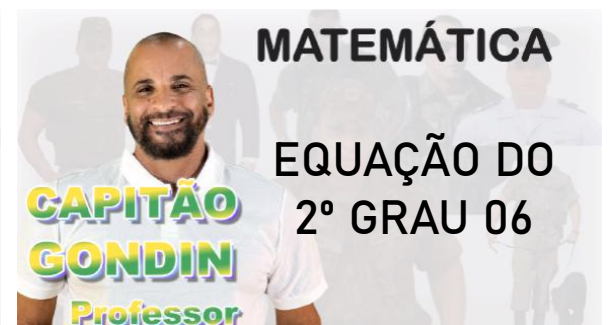
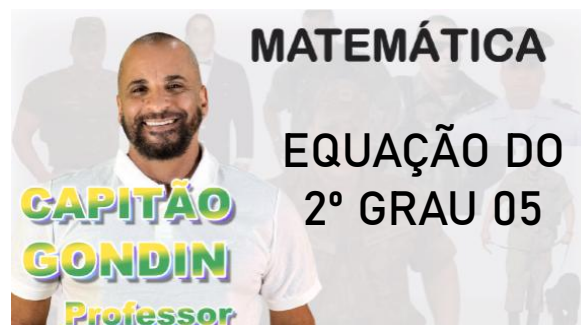
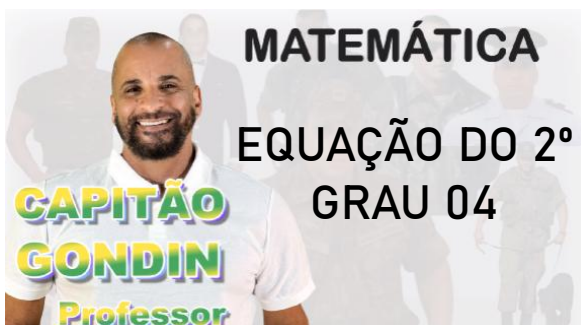
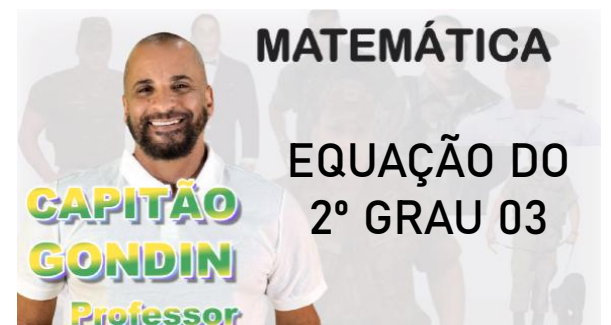
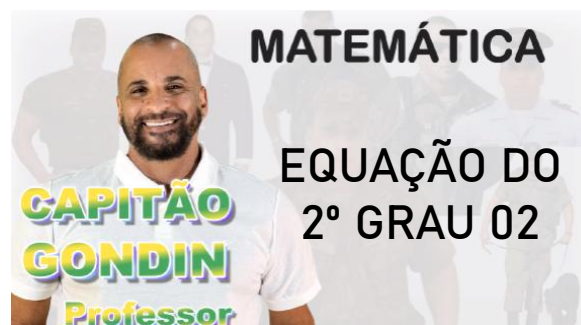
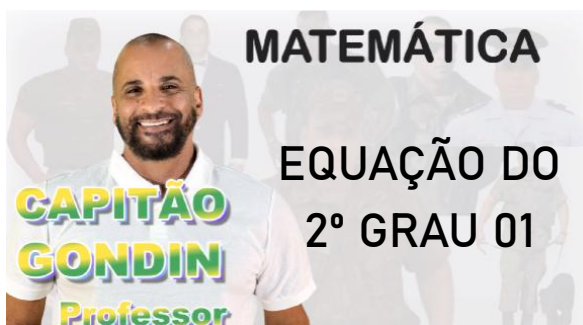


Assista as aulas!

Clique nas figuras!

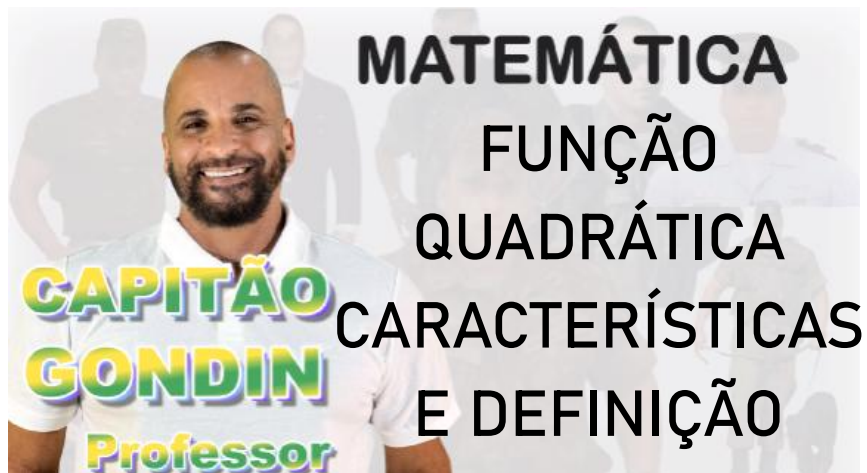


EXERCÍCIOS



UNIDADE 02: Função

10) Função Quadrática Características e Definição

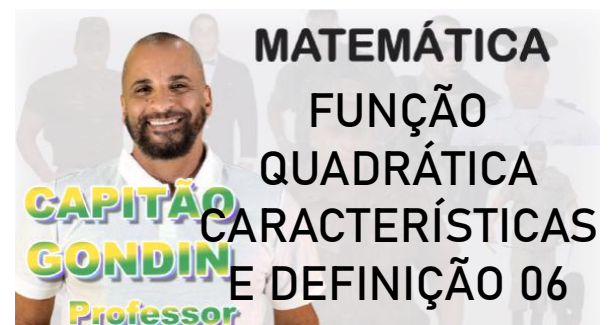
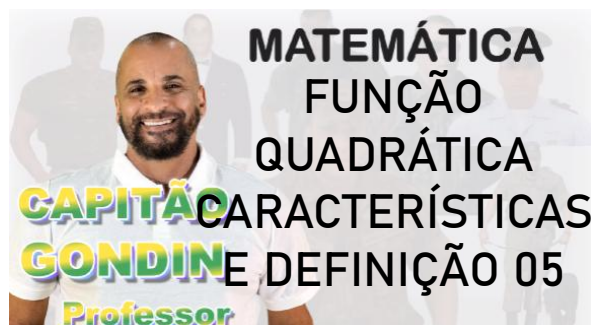
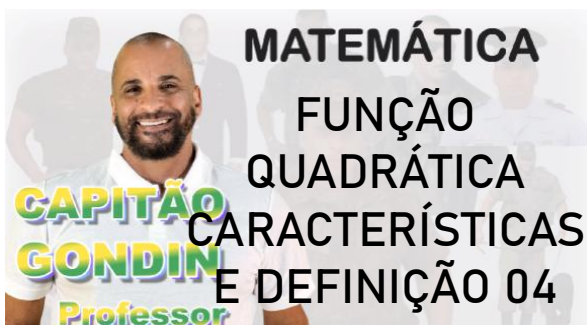
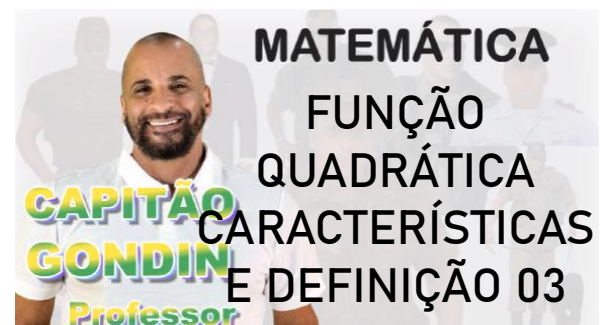
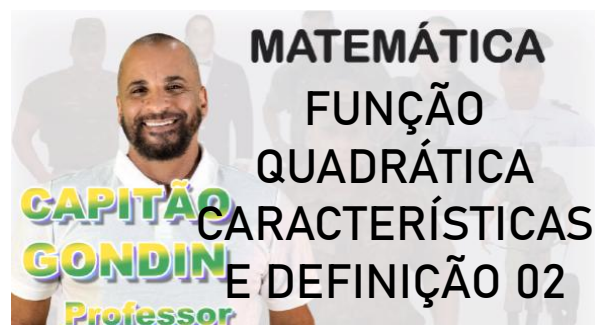
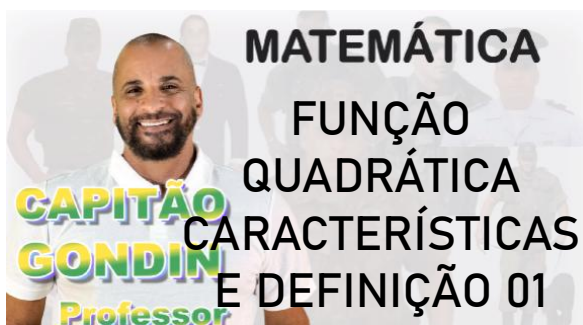


Assista as aulas!

Clique nas figuras!

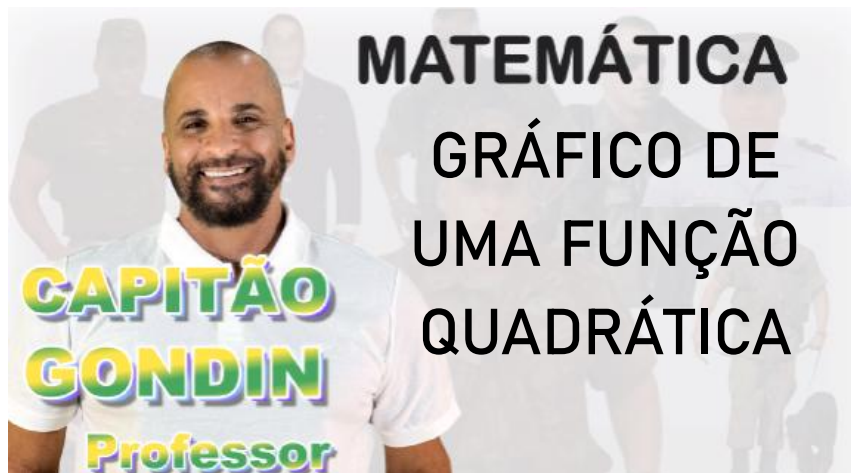


EXERCÍCIOS



UNIDADE 02: Função

11) Gráfico de uma Função Quadrática

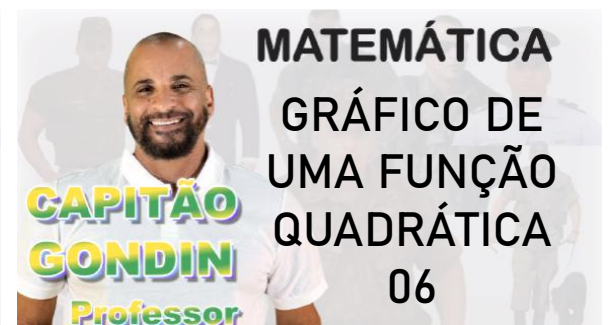
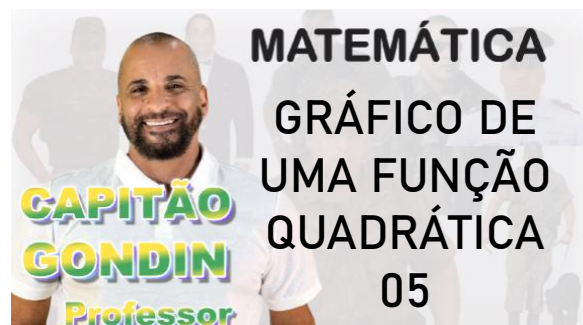
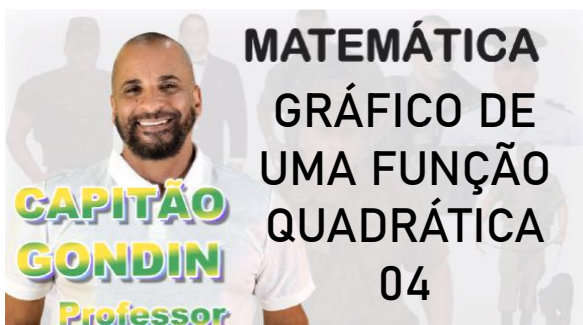
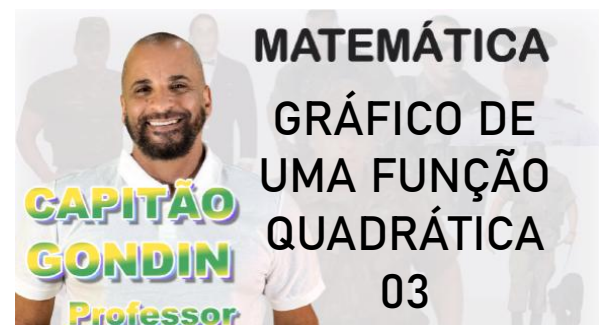
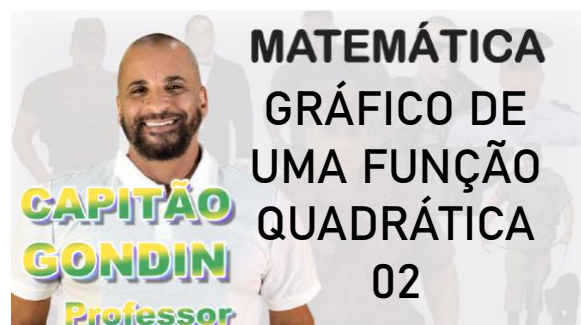
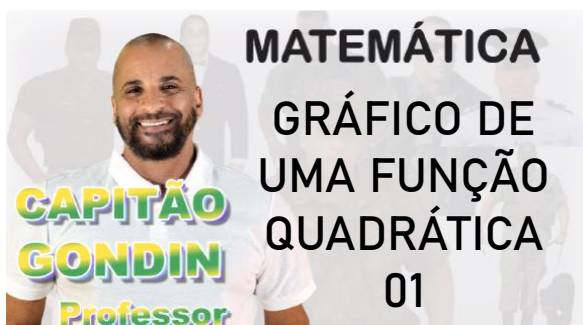


Assista as aulas!

Clique nas figuras!

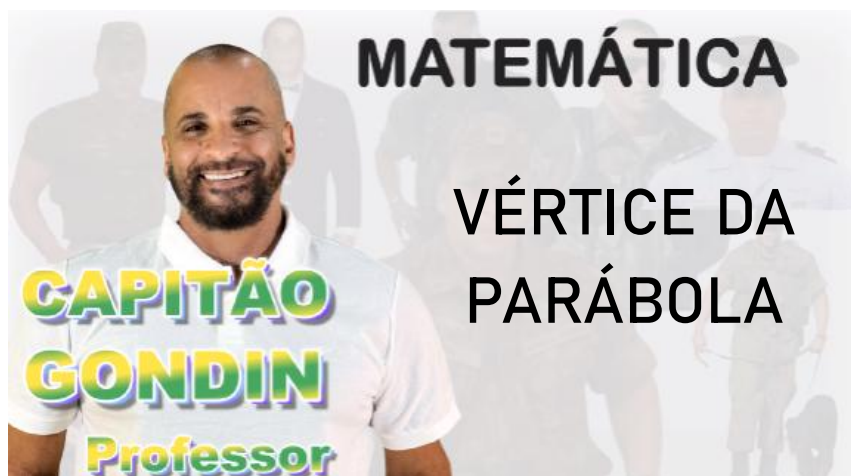


EXERCÍCIOS



UNIDADE 02: Função

12) Vértice da Parábola

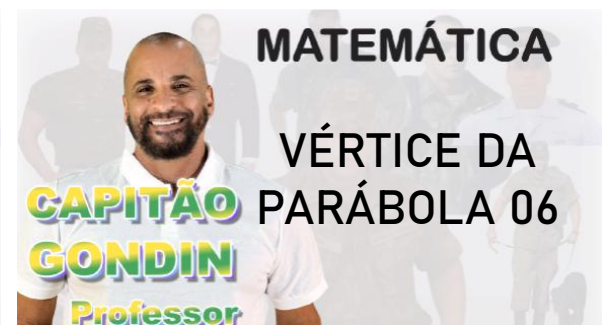
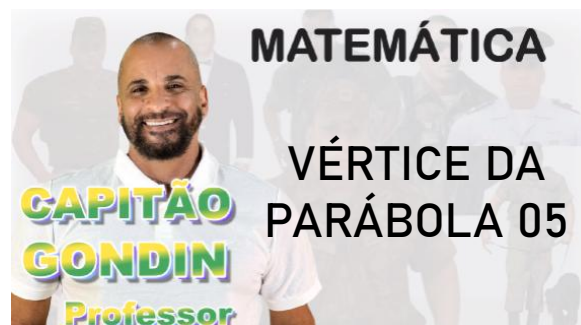
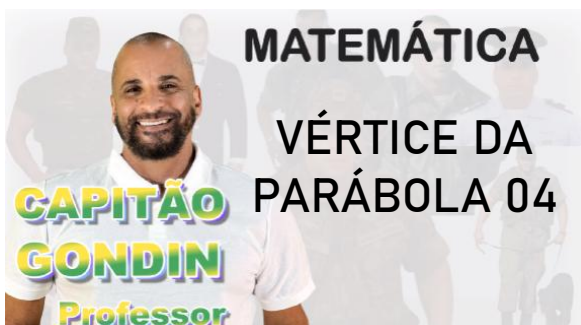
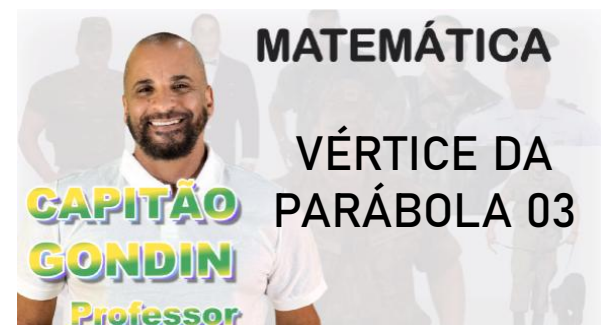
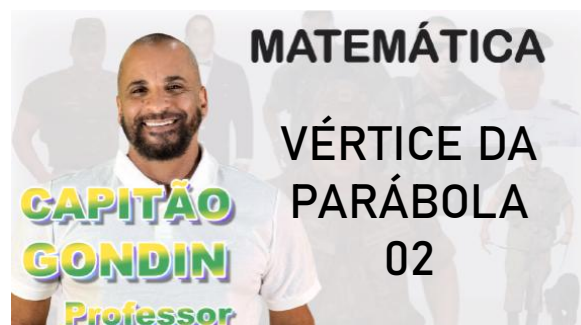
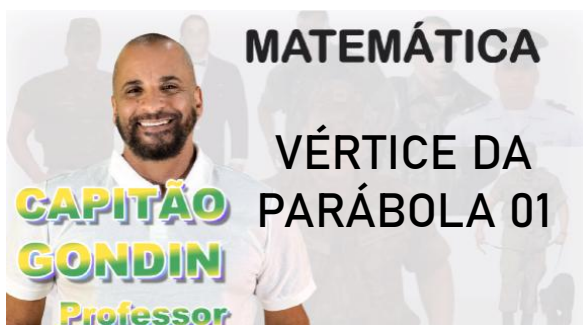


Assista as aulas!

Clique nas figuras!

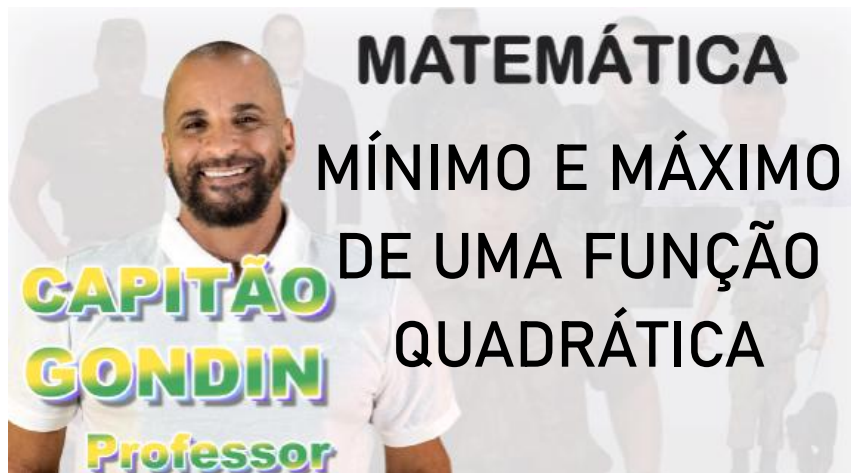


EXERCÍCIOS



UNIDADE 02: Função

13) Mínimo e Máximo de uma Função Quadrática

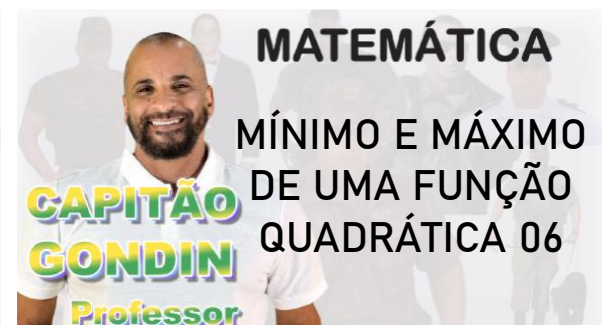
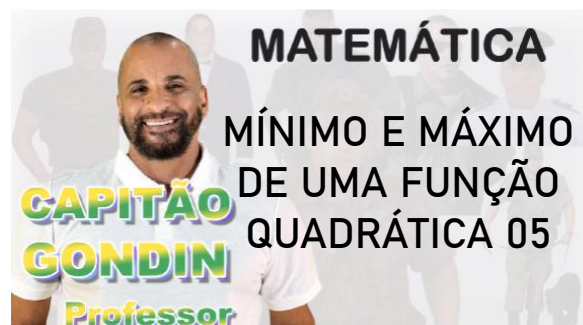
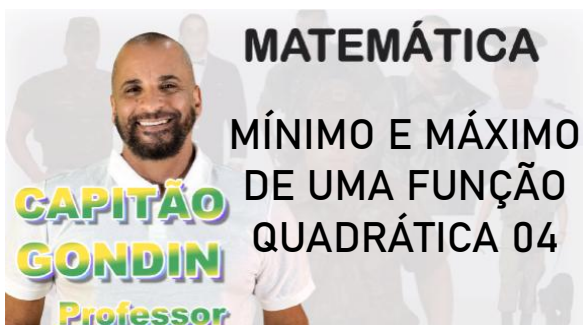
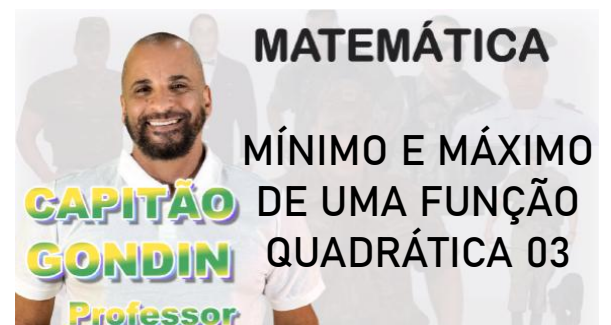
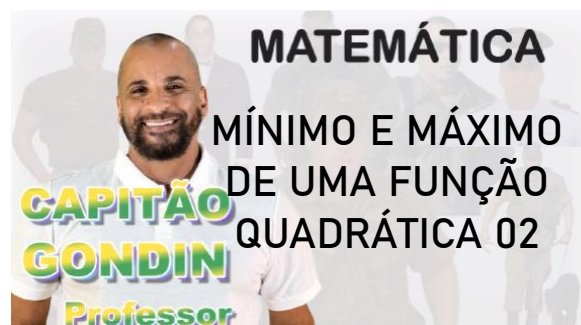
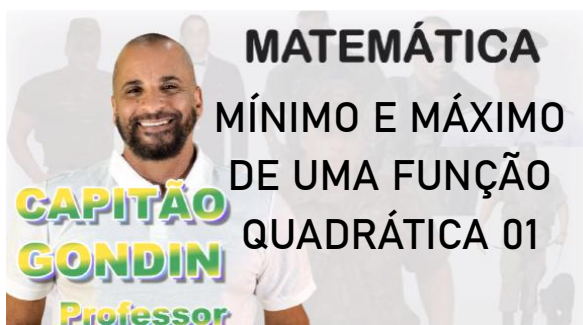


Assista as aulas!

Clique nas figuras!

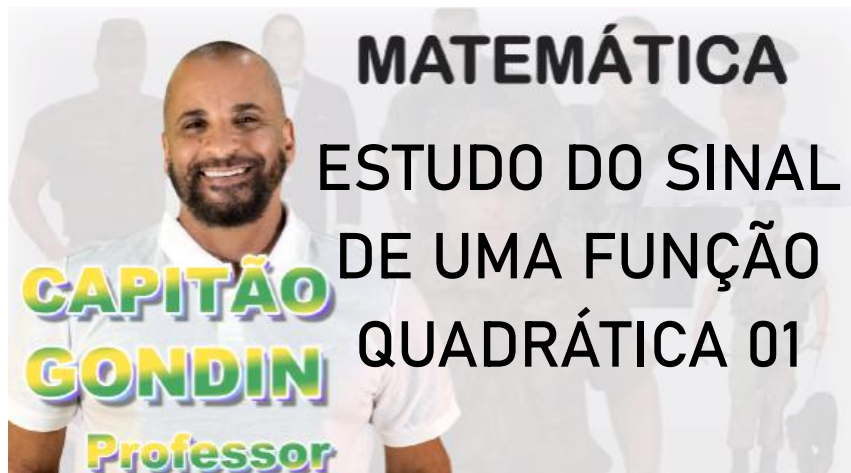


EXERCÍCIOS



UNIDADE 02: Função

14) Estudo do Sinal de uma Função Quadrática

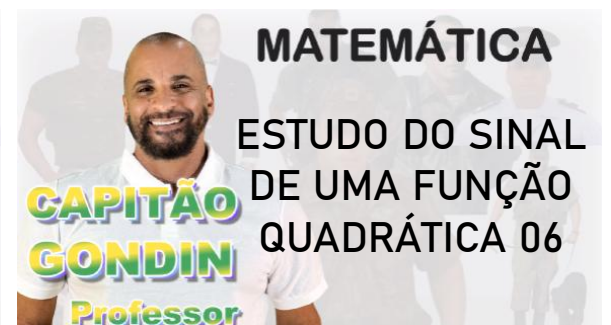
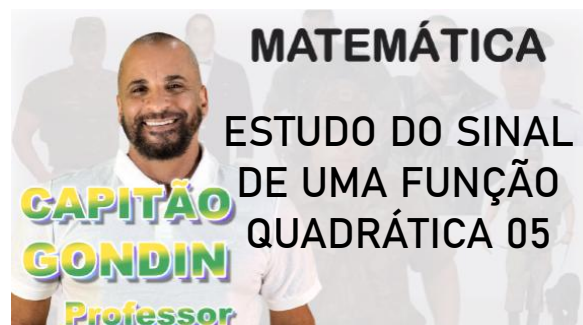
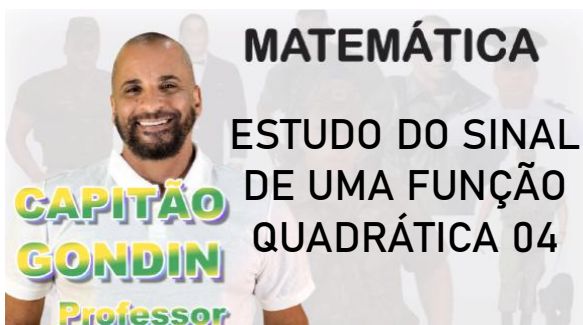
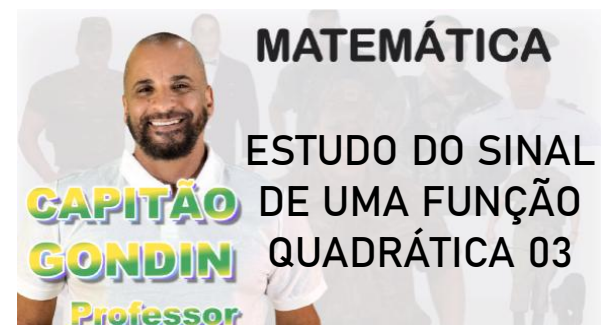
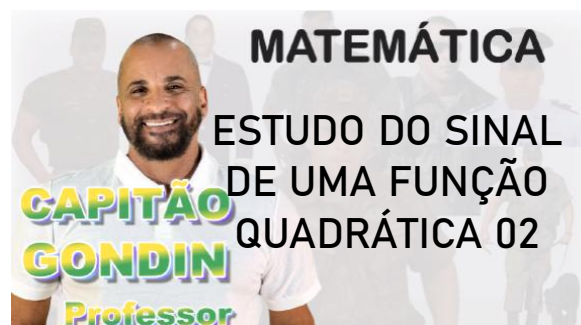
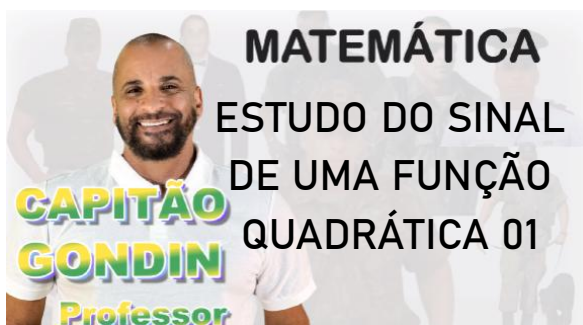


Assista as aulas!

Clique nas figuras!



EXERCÍCIOS



UNIDADE 03:

Geometria

CAPITÃO GONDIN
Professor de Física



UNIDADE 03: Geometria

01) Teorema de Tales

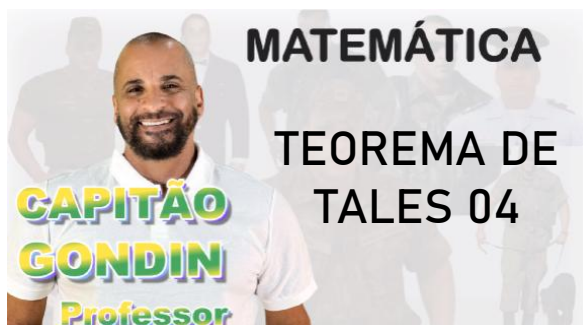
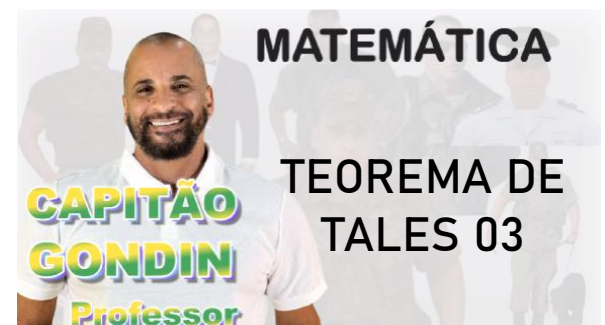
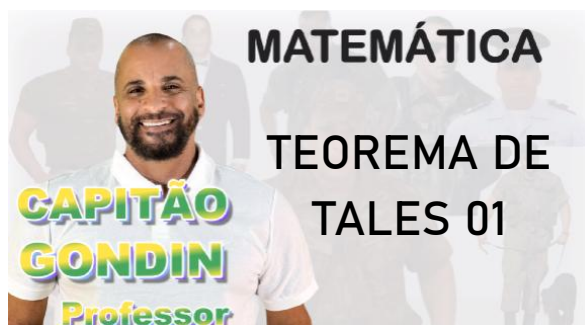


Assista as aulas!

Clique nas figuras!



EXERCÍCIOS



UNIDADE 03: Geometria

02) Semelhança de Polígonos

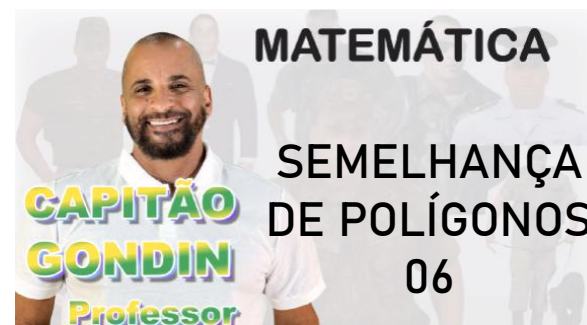
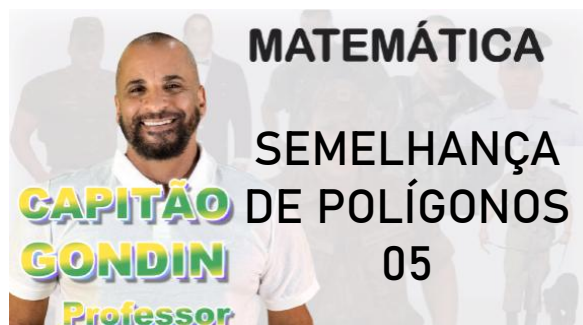
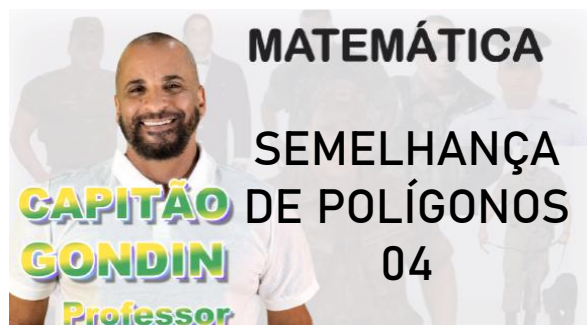
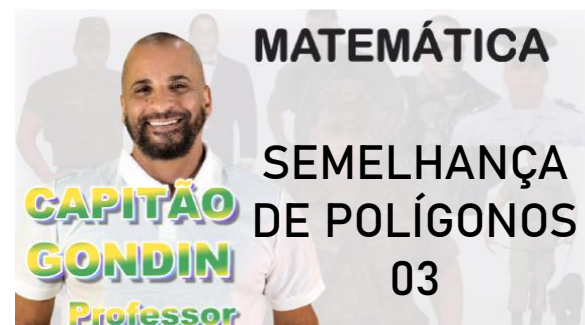
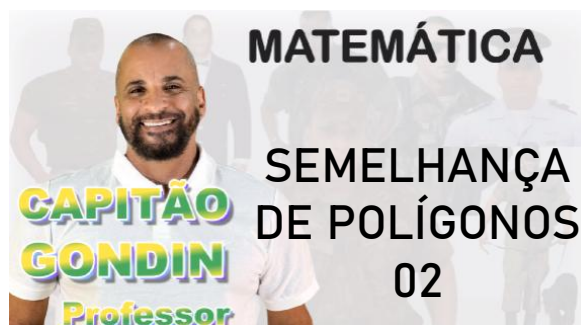
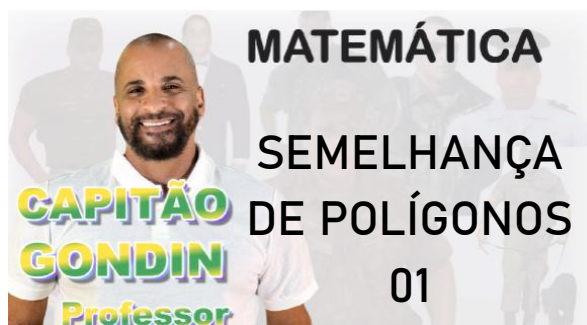


Assista as aulas!

Clique nas figuras!

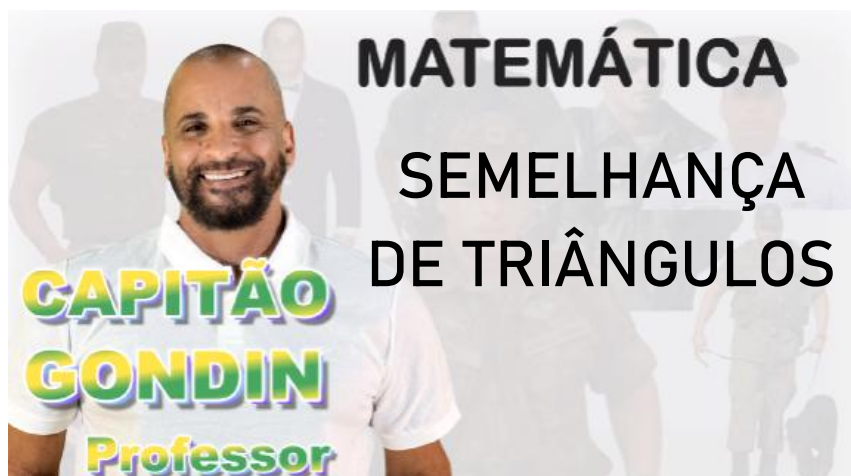


EXERCÍCIOS



UNIDADE 03: Geometria

03) Semelhança de Triângulos

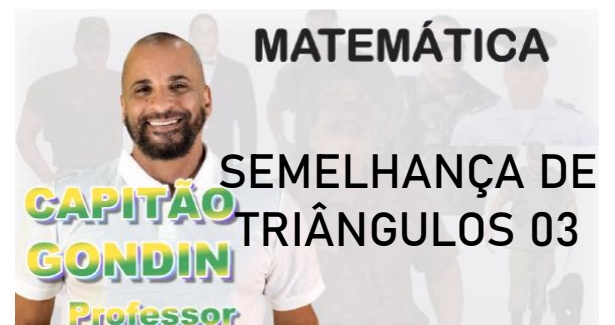
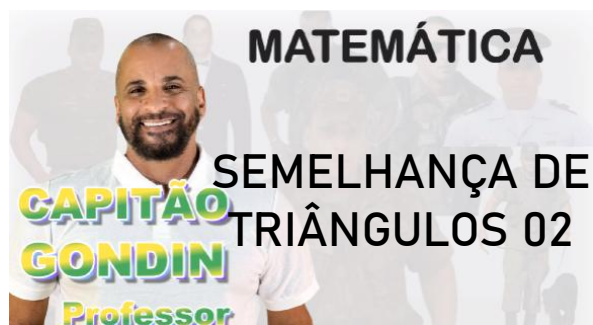


Assista as aulas!

Clique nas figuras!



EXERCÍCIOS



UNIDADE 03: Geometria

04) Relações Métricas de um Triângulo Retângulo

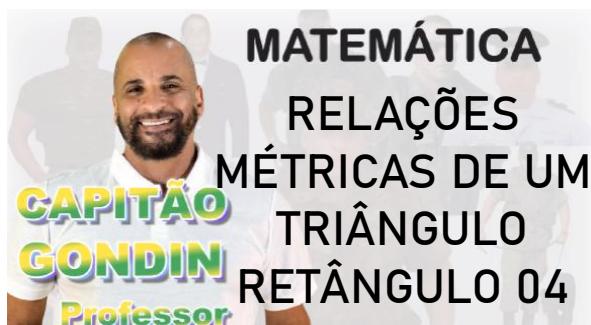
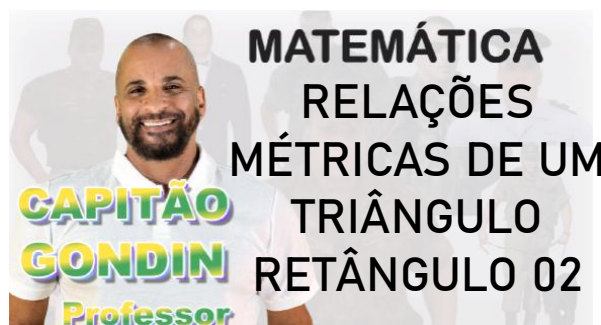
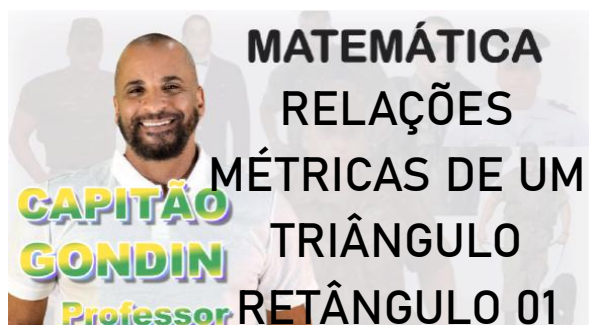


Assista as aulas!

Clique nas figuras!

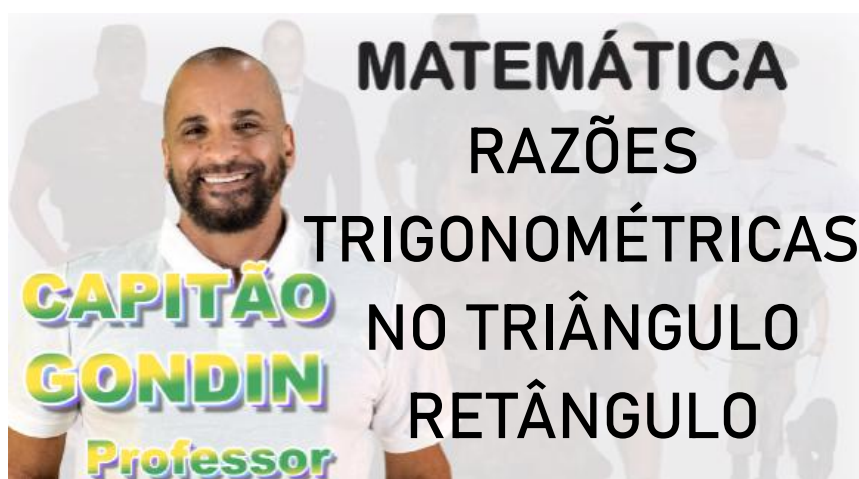


EXERCÍCIOS



UNIDADE 03: Geometria

05) Razões Trigonométricas no Triângulo Retângulo

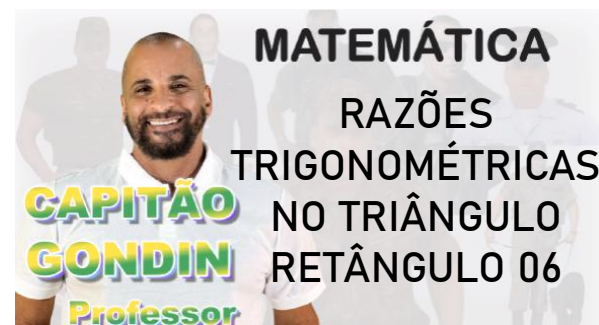
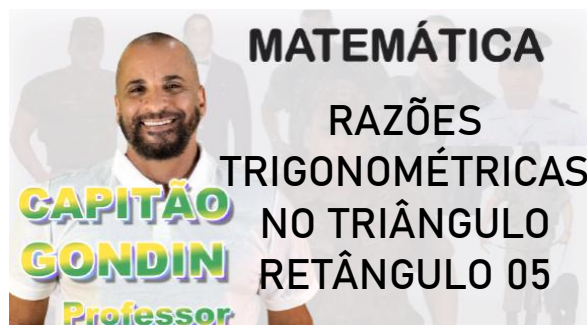
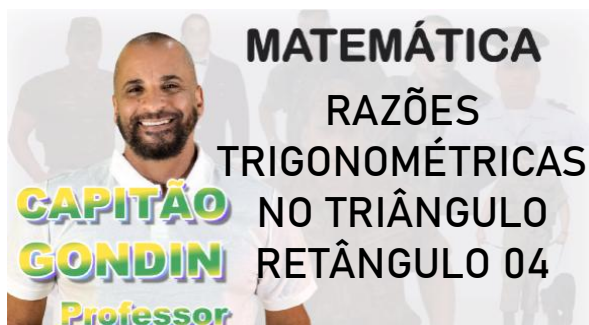
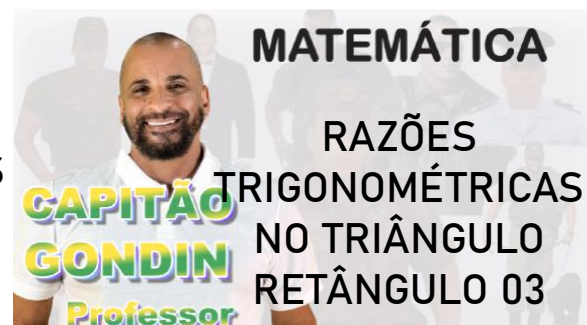
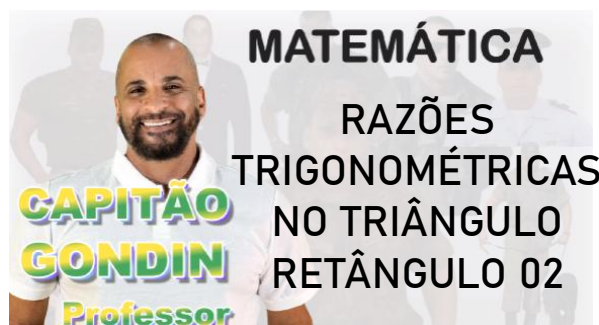
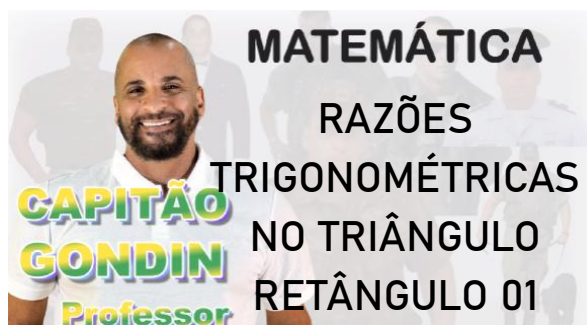


Assista as aulas!

Clique nas figuras!

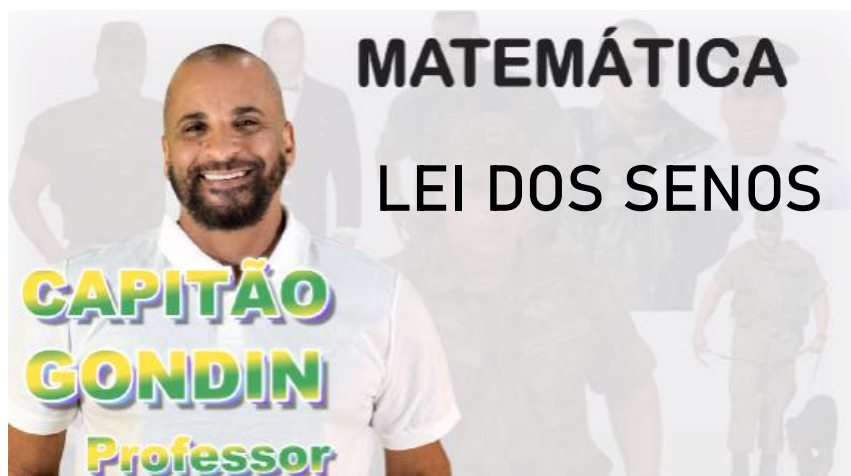


EXERCÍCIOS



UNIDADE 03: Geometria

06) Lei dos Senos

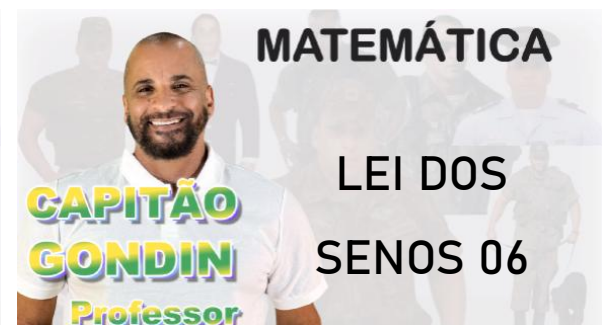
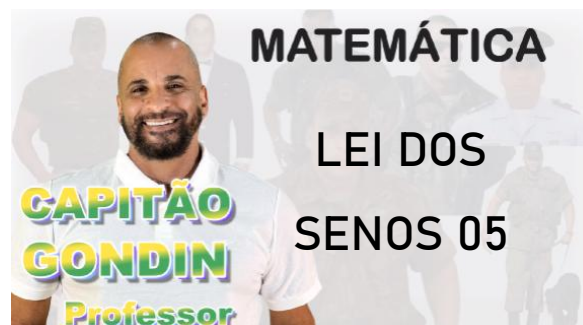
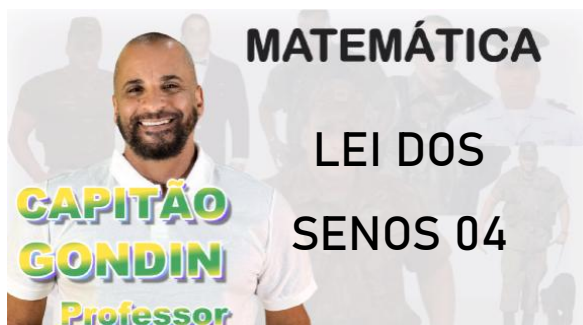
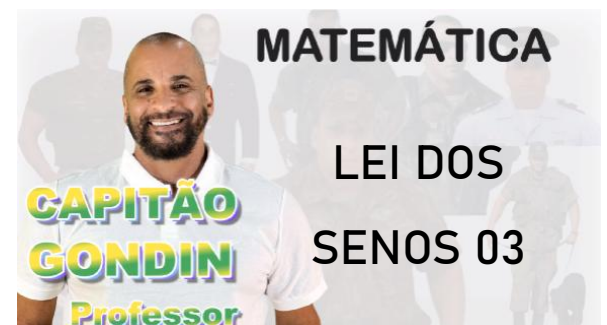
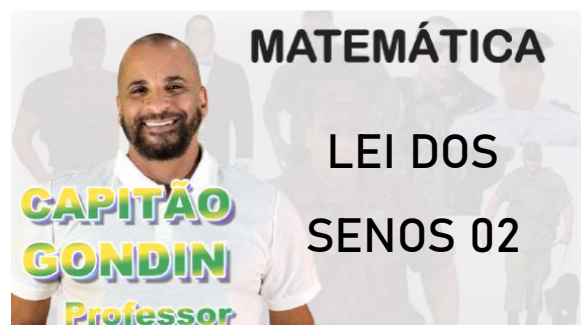
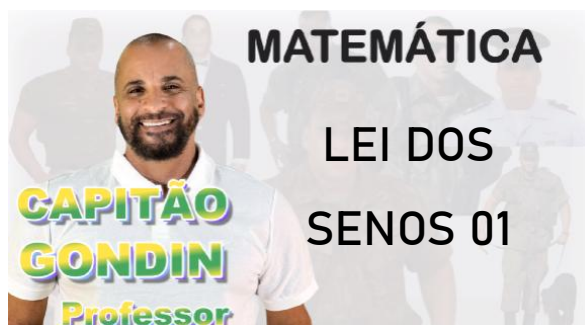


Assista as aulas!

Clique nas figuras!

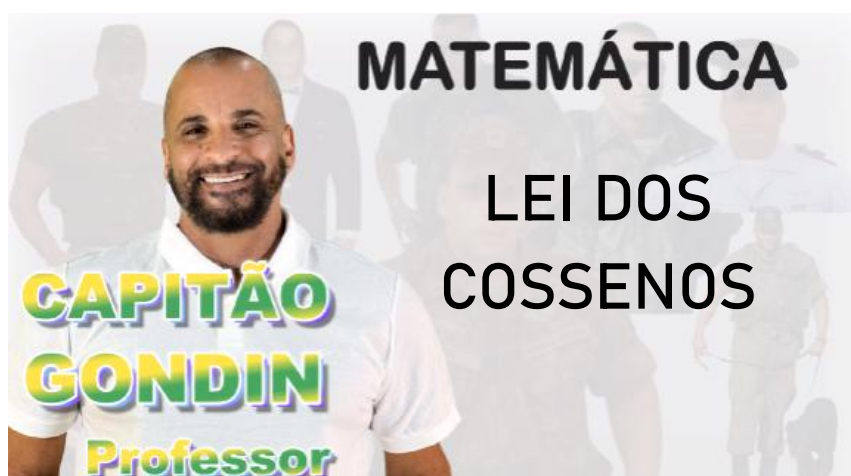


EXERCÍCIOS



UNIDADE 03: Geometria

07) Lei dos Cossenos



Assista as aulas!

Clique nas figuras!



EXERCÍCIOS

