

Resumão

especial

MATEMÁTICA FINANCEIRA COM A HP 12C

A CALCULADORA

Escrevida em 1981, a HP 12C (chamada popularmente de HP) é a calculadora mais conhecida e utilizada por quem trabalha com cálculos financeiros.

Avançada — trabalha com muitas funções e memórias — e programável — possui funções para edição de programas, número ampliado de memórias, etc. —, utiliza o método RPN (sigla em inglês de Reverse Polish Notation, ou notação polonesa reversa), criado pelo cientista australiano Charles Hamblin nos anos 50 a partir do seu aperfeiçoamento do método de notação polonesa, conhecido desde os anos 20. Esse sistema, combinado com outras características da HP, que é o funcionamento com pilhas operacionais, possibilita realizar operações básicas encadeadas, com a inserção de todos os dados de uma única vez, diferentemente do que ocorre com as calculadoras que operam no modo algebrico, em que os cálculos complexos devem ser encadeados etapa a etapa. E por causa desse modo de funcionamento que na HP os cálculos devem ser inseridos antes da operação.

Operação	Método algebrico (calculadora comum)	Método Polonês (calculadora HP12C)
$a+b$	$a+b$	$a b +$
$a-b$	$a-b$	$a b -$
$a \cdot b$	$(a+b)/b$	$a b \cdot$
a/b	$(a \cdot b)-(b \cdot b)/b$	$a b /$

Assim, para realizar a operação $4+6$ na HP, procede-se da seguinte forma:



Ou seja, digitam-se primeiro os elementos da operação e, por último, a operação (no caso, soma), sem a necessidade de digitar [=], sócia que invierte na calculadora HP (ou versão Platinum, a tecla [=] existe, porque nela desse modo não é possível o uso no modo algebrico de cálculo).

A PILHA OPERACIONAL

A HP utiliza um processo de armazenamento de dados denominado pilha operacional, que nada mais é do que um arquivo com quatro registradores (X, Y, Z e T) nos quais são “guardados” os valores necessários à realização das operações. Usar-se o nome “pilha” porque os registradores são chamados “pilhas” dentro da máquina; os dados apresentados no visor não são os registradores X.

A medida que são inseridos novos dados, elas são sendo “empilhadas” até a realização da operação subsequente. Utilizando o exemplo anterior, é possível compreender, pela figura a seguir, como funciona a pilha operacional da HP.

USO DO TECLADO

Para selecionar a função trigonométrica inversa não basta apertar a tecla de uma só vez, aperte a tecla [F1] e, em seguida, a tecla de função.

Para selecionar a função potência, impõe-se na tecla superior da uma tecla, aperte somente a tecla.

Para selecionar a função subtração (impõe-se com a tecla inferior de uma tecla, aperte a tecla [F2] e, em seguida, a tecla de função).



Operação	Programa	Registrador
$X=0$	X	Limpia os registradores
$0 \leq X \leq 1$	X	0 número
$0 \leq Y \leq 1$	Y	0 apagar visor
$0 \leq Z \leq 1$	Z	0 número 4,0 “empilhado” com Y, eliminando oória precedente com X
$0 \leq T \leq 1$	T	0 número 4 substituindo a oória precedente com X
$X=1$	X	Av. digitar a operação, os operandos, os resultados de X e Y são armazenados, e o resultado é mostrado em X
$0 \leq Y \leq 1$	Y	
$0 \leq Z \leq 1$	Z	
$0 \leq T \leq 1$	T	
$X=0$	X	

Como visto, é a combinação do sistema RPN e do funcionamento com pilha operacional que permite otimizar as operações na HP em relação às calculadoras convencionais.

Vejamos a seguinte expressão:

$$(7+3) \cdot (15-4)$$

Enquanto em uma calculadora algébrica (comum) é necessário realizar cada operação colocada entre parênteses de uma vez e anotar o resultado, na HP é possível realizar todas as operações simultaneamente:



Nota que as operações são feitas seguindo a hierarquia algébrica (primeiro, o que está dentro dos parênteses). Assim, a soma entre os parênteses é a última etapa, procedida ape-

nas depois que a calculadora já armazenou, na pilha operacional, o resultado da operação de cada um deles.

Nota: a tecla [ENTER] serve para indicar que a introdução dos primeiros números deve parar, após o segundo número, em cada operação, é só apertar a tecla [ENTER] e subtraí-la. Assim, a calculadora pode identificar que o número “acabou”. Isso só ocorre quando se introduz os primeiros números. Portanto, [ENTER] “informa” a calculadora que o primeiro número a ser digitado não é mais usado e pertence a elemento da soma e que ela pode armazenar aquele valor já introduzido na pilha operacional.

TESTE SUA CALCULADORA

Para realizar um teste rápido de funcionamento, proceda da seguinte forma: identifique a calculadora. Cosa a HP desligada, aperte a tecla correspondente ao sinal de multiplicação [x]. Mantendo a tecla pressionada, toque [x] e, em seguida, [x]. A calculadora apresentará o mensageiro “Inverso” (processando) e, na sequência, o visor mostrará todos os dígitos (0 a 9), com o sinal (-) à frente, ou todos os dígitos (0 a 9), com o sinal (+) à frente, ou todos os dígitos (0 a 9), com o sinal (x) à frente, ou todos os dígitos (0 a 9), com o sinal (÷) à frente, ou todos os dígitos (0 a 9), com o sinal (–) à frente.

MEMÓRIA

A memória da HP é constante, ou seja, conserva os dados armazenados mesmo quando a calculadora é desligada. Há 20 memórias, que são armazenadas em registadores numerados de 0 a 9 e de 0 a 9 (codificadas em grupos de dois dígitos do registrador). Por exemplo, para armazenar o número 34 no registrador 3 é o número 71 no registrador 1.



Para recuperar os dados:



Manual Da Hp12c

Jin-Ying Zhang

Manual Da Hp12c:

GUIA PRÁTICO DE UTILIZAÇÃO DA CALCULADORA FINANCEIRA HP12C, 2015-03-10 Este guia para o usuário da HP12C foi criado para auxiliar o discente a aproveitar o máximo possível os recursos da calculadora financeira programável HP12C. Embora a mesma não adquirir esta poderosa ferramenta financeira possa lhe fazer colocar este texto de lado e começar a apertar botões imediatamente no longo prazo você ganhar se tiver lido esta guia e experimentado os exemplos apresentados

Dia de chuva Alvaro Modernell, 2024-11-04 Dia de chuva um convite para fazer coisas diferentes especiais dia de aconchego Dia de chuva bom para abrir um livro e se deliciar. Essa obra fala das coisas boas que se pode fazer e curtir em dias de chuva. Deixe este livro guardadinho até o próximo dia de chuva. Então leia e aproveite. *Matemática financeira na prática* Paulo Vagner Ferreira, 2019-01-01 Aprenda a resolver os desafios de matemática financeira na prática através da resolução passo a passo de problemas financeiros reais utilizando fórmulas calculadora financeira HP 12C ou planilha eletrônica. Neste livro você aprender sobre Taxa de juros Capitalizado a juros simples e compostos, Anuidades, Análise de viabilidade financeira, VPL e TIR, Amortização de vidas Price e SAC, Desconto simples e composto e Depreciação pelos métodos linear, crescente e decrescente. *Elaboração e Avaliação de Projetos de Investimento* Jocildo Figueiredo, 2009 **COMO AUMENTAR SEU PATRIMÔNIO** LILIAN GALLAGHER, Neste livro são discutidas questões como mercado empresarial imobiliário e financeiro, Busca ajudar e incentivar as pessoas na busca do crescimento e da independência financeira destinado a pessoas que não entendem da área financeira e querem ou precisam aprender a lidar com suas finanças pessoais. São apresentados produtos financeiros destinados à pessoa física e abordadas questões como aposentadoria e heranças para que o leitor receba orientação de que precisa para viver bem com seu dinheiro. *Educação Financeira E Finanças Pessoais* Valter Saurin, Christine Saurin, Luiz Fernando Saurin, 2017-05-14 SUM RIO. Este livro inclui conceitos, exemplos e exercícios sobre educação financeira e finanças pessoais. 1. Introdução que aborda a educação financeira fazendo uma síntese sobre objetivos pessoais, dinheiro, vidas, aposentadoria, seguros e finanças pessoais, referindo-se às aplicações financeiras das compras a prazo e das armadilhas financeiras. 2. Controle financeiro que demonstra o uso dos quadros de pagamentos, recebimentos, fluxo de caixa, aplicações financeiras e a posição patrimonial. 3. O valor do dinheiro no tempo que inclui o estudo das taxas de juros, os índices básicos de medição da inflação, a taxa de desvalorização da moeda, a taxa de juros real, o valor presente e o valor futuro e o uso da calculadora HP12C. 4. Planejamento financeiro que analisa a poupança e ciclo de vida, o seguro social, a previdência privada, gastos com uma carreira profissional e a decisão de comprar ou alugar um imóvel. 5. Investimento financeiro que trata dos fatores das modalidades dos fundos de investimentos e do imposto de renda incidente sobre aplicações financeiras. 6. Moeda digital que trata de bitcoin, blockchain, segurança do sistema e a geração de bitcoins. 7. Referências que indicam a bibliografia consultada. 8. Anexos que incluem as respostas às questões de revisão, uma lista de exercícios com a solução, um modelo de questionário sobre habilidade numérica e perfil de risco e um resumo sobre fundos de investimentos.

ABSTRACT This book includes concepts examples and exercises about financial education and personal finance 1 Introduction which addresses financial education making a synthesis on personal goals money debts retirement insurance and personal finance referring to financial investments term purchases and financial traps 2 Financial control which demonstrates how work the tables of payment receipts cash flow financial investments and equity position 3 The time value of money which includes the study of interest rates the basic inflation indexes the rate of currency devaluation the real interest rate the present value the future value and the use of HP12C calculator 4 Financial planning which examines saving and life cycle social security private pension career expenses and the decision to buy or rent a property 5 Financial investment which addresses the factors modalities investment funds and income tax on financial investments 6 Digital currency which deals with bitcoin blockchain system security and the generation of bitcoins 7 References which indicates the bibliography consulted 8 Attachments which includes the answers to the review questions a list of exercises with the solution a questionnaire model on numerical ability and risk profile and a summary of investment funds **Bibliographic Guide to Business and Economics** New York Public Library. Research Libraries,1991 **Subject Guide to Books in Print** ,1971

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Table of Contents Manual Da Hp12c

1. Understanding the eBook Manual Da Hp12c
 - The Rise of Digital Reading Manual Da Hp12c
 - Advantages of eBooks Over Traditional Books
2. Identifying Manual Da Hp12c
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Manual Da Hp12c
 - User-Friendly Interface
4. Exploring eBook Recommendations from Manual Da Hp12c
 - Personalized Recommendations
 - Manual Da Hp12c User Reviews and Ratings
 - Manual Da Hp12c and Bestseller Lists
5. Accessing Manual Da Hp12c Free and Paid eBooks
 - Manual Da Hp12c Public Domain eBooks
 - Manual Da Hp12c eBook Subscription Services
 - Manual Da Hp12c Budget-Friendly Options
6. Navigating Manual Da Hp12c eBook Formats
 - ePUB, PDF, MOBI, and More
 - Manual Da Hp12c Compatibility with Devices
 - Manual Da Hp12c Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Manual Da Hp12c
 - Highlighting and Note-Taking Manual Da Hp12c
 - Interactive Elements Manual Da Hp12c
8. Staying Engaged with Manual Da Hp12c

- Joining Online Reading Communities
- Participating in Virtual Book Clubs
- Following Authors and Publishers Manual Da Hp12c

9. Balancing eBooks and Physical Books Manual Da Hp12c

- Benefits of a Digital Library
- Creating a Diverse Reading Collection Manual Da Hp12c

10. Overcoming Reading Challenges

- Dealing with Digital Eye Strain
- Minimizing Distractions
- Managing Screen Time

11. Cultivating a Reading Routine Manual Da Hp12c

- Setting Reading Goals Manual Da Hp12c
- Carving Out Dedicated Reading Time

12. Sourcing Reliable Information of Manual Da Hp12c

- Fact-Checking eBook Content of Manual Da Hp12c
- Distinguishing Credible Sources

13. Promoting Lifelong Learning

- Utilizing eBooks for Skill Development
- Exploring Educational eBooks

14. Embracing eBook Trends

- Integration of Multimedia Elements
- Interactive and Gamified eBooks

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web 5 3 first wash the used glassware properly with raw water 5 4 then scrub the glassware with 0 1 detergent solution 1 ml teepol in 1000 ml purified water 5 5 rinse the glassware properly with raw water 5 6 again rinse 3 to 4 times with purified water 5 7 drain the water from glassware 5 8 keep in drier use dried glassware for analysis

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