(a) \[ \frac{p}{a} = \frac{(1+i)^n - 1}{i(1+i)^n} \]

(b) \[ \text{pv. face value at } t=20 = \frac{\text{face value}}{(1+i)^{19}} \]

\[ A+B \quad \text{current price of bond} \]

\[ \Delta P_{\text{bond}}/\Delta i < 0 \]
answer:

\[ PV[a, i, n] = \frac{a}{(1+i)^n} \]  \hspace{1cm} (a)

**Question + Answer**

\[ PV[a, i, (n+1)] = \frac{a}{(1+i)^{n+1}} \]  \hspace{1cm} (b)

**note:**

\[ (b) = \frac{1}{(1+i)^1} \cdot (a) \]

(a) (b) (c) (d) (e) (f) etc.

**a declining geometric series**
A-1. DISCOUNT FACTOR - How much 1 at a future date is worth today.

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<th>3%</th>
<th>5%</th>
<th>7%</th>
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<th>14%</th>
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**Question:** PV(Ca, i, n) • Verbalize
PERSONAL FINANCE: CALCULATORS, QUESTIONS AND ANSWERS

Money Arithmetic

Mathematics of Individual Finance
Future Value - (Single) Calculation Result
Future Value (Periodic Deposits) Calculator

Questions and Answers

SmartCalc: Interactive Calculators
Should I lease or purchase?
How long should I keep a car?
What will it take to become a millionaire?
Financial Calculators
Financial Wizards
Amortization Calculator
Amortization Results
Rent vs. Buy Analysis
Rent vs. Buy Results
College Planner
First Citizens Bank - Education Costs
Sallie Mae calculators
Loan Planner Results
Finance Calculators
BeOnTheNet's Ultimate Financial Calculators
Financial Calculator
Calculators
Find Out What Your Savings Bonds Are Worth
ITT Hartford's Estate Tax Calculator
The Hartford: Estate Planning In Action
Interactive Home Buying on Web Financial Calculations DEMO COPY
VR - National: Relocation: Best Places To Live: Cost Of Living Calculators

Pricing Derivatives

TermFinance - Index
Welcome to TermFinance
DERIVATIVES 'R US
NumaWeb : DERIVATIVES INDEX
MITI OptionsCalc-Pro Series
MITI BondsCalc
Robert's Online Option Strategy Visualizer!
Robert's Online Option Pricer!
Robert's Online Stock Volatility Charts!
Robert's Online Loan Pricer!
Robert's Online Spreadsheet!
The Option Meister

Downloadable Financial Calculators
Try out a calculator by selecting a category and clicking on one of the questions.

**HOME BUYING AND REFINANCING**

- How much can I borrow?
- How much will my payments be?
- How much will adjustable rate payments be?
- Which is better: fixed or adjustable?
- Should I pay points to lower the rate?
- Which is better: 15 or 30 year term?
- How much should I put down?
- How much can I save in taxes?
- What will my closing costs be?
- Am I better off renting?
- Am I better off refinancing?
- What will my refinancing costs be?
- How can I reduce mortgage insurance costs?
- Which lender has the better loan?
- Which loan is better?

**HOME EQUITY CALCULATORS**

- How large a line of credit can I obtain?
- Should I consolidate debts?
- Should I use a home equity loan instead of an auto loan?
- How much will my payments be?
- What will my tax savings be?
- What will it take to pay off my line of credit?

**AUTO CALCULATORS**

- Which is better: new or used?
- How much should depreciation cost me?
- Should I lease or purchase?
- Should I finance or pay cash?
- How much will my monthly payment be?
- How much should I put down?
- What term of loan should I choose?
- Should I use a home equity loan instead of an auto loan?
- Which is better: a rebate or special dealer financing?
- How long should I keep a car?
CREDIT CARD CALCULATORS

How important is the interest rate?
How will rate changes affect my balance?
Is a lower rate worth the annual fee?
What will it take to pay off my balance?
Should I consolidate debts?
Which is better: Flight Card or Low Rate Card?
Which is better: Rebate Card or Low Rate Card?

PERSONAL LOAN CALCULATORS

Should I consolidate debts?
How much will my payments be?
What will it take to pay off my line of credit?

SAVINGS AND INVESTMENT CALCULATORS

What will it take to become a millionaire?
How much will my savings be worth?
What will it take to save for a car, home, etc.?
What will it take to save for a college education?
How will taxes and inflation affect my savings?
How much difference will the rate make?
What's it worth to reduce my spending?

BUDGETING CALCULATORS

How much am I spending?
Should I pay off debt or invest in savings?
What will it take to pay off my balance?
How much should I set aside for emergencies?
How much will it cost to raise a child?
What's it worth to reduce my spending?
Should my spouse work too?

INSURANCE CALCULATORS

How much life insurance do I need?
What is my return on a whole life policy?
What is my return on a universal policy?
What is my return on a variable life policy?
Which is better: term or whole life?
Which is better: term or universal life policy?
Which is better: term or variable life policy?
Which cash value policy is better?

RETIREMENT CALCULATORS
What will my expenses be after I retire?
How do I plan for my retirement?
Am I saving enough? What can I change?
How advantageous is increasing my savings?
How much can I invest tax-deferred each year?
How will my savings grow?
Which savings or income sources will be the largest?
What will my income be after I retire?
How much will Social Security provide?
What if I underestimate my expenses?
What happens if tax laws change?
How much effect can inflation have?
What if I overestimate my return?
What if Social Security no longer exists?
How will my savings be used after retirement?
Which savings should be used first?

**MUTUAL FUND CALCULATORS**

What is my return if I sell today?
What future return makes selling now worthwhile?
What selling price gives my desired return?
How much do fees affect my return?
Should I sell before or after one year?
Which fund is better?
Which is better: a load or a no-load fund?
How do exchange rates affect my foreign fund?
How do growth and income funds compare?
When will I recover my costs?

**STOCK CALCULATORS**

What is my return if I sell now?
Should I sell before or after one year?
What future return makes selling now worthwhile?
What selling price provides my desired return?
What is my current yield on dividends?
How much do fees affect my return?
Which are better: growth or income stocks?
How do exchange rates affect my foreign stocks?
When will I recoup my investment?

**BOND CALCULATORS**

What is my yield to maturity?
What is my yield on coupon income?
What is my return if I sell today?
How will rate changes affect my bond's value?
What price should I pay?
What selling price provides my desired return?
What might be my yield-at-call?
From a tax standpoint, when should I sell?
Which are better: tax-exempt or taxable bonds?
Which is better: discount or high coupon rate?
Should I buy a zero coupon bond?
Which bond is better?