

# GOAL

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GOAL is an e-learning test prep tool for students to practice skills learned in class or from independent study. The online platform offers a database of SOA & CAS exam-style problems with detailed solutions. GOAL offers instructor support as well as performance reporting and tracking so you can monitor your progress.

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The screenshot displays the GOAL e-learning portal interface. At the top, there is a navigation bar with 'Home', 'Seminar Administrator', 'Seminar Users', 'Support', and 'Log Off'. Below this is a header for 'GOAL' with a search bar and navigation buttons like 'Problem #', 'Go!', 'Problem 1 of 5', 'Prev', 'Next', and 'Leave'. The main content area is titled 'Question' and shows a problem statement: 'A loan is being repaid with 2 payments: A first payment of \$1,500 at the end 2 years and a second payment of \$1,600 at the end of 7 years. Determine the loan amount given an annual effective rate of discount of 2%.' Below the question are four multiple-choice options (A, B, C, D). A tooltip for option B provides a formula:  $1,500(0.98)^{-2} + 1,600(0.98)^{-7}$  and notes that it gives AV's instead of PV's. Below the options is a 'Help Me Start' section with a prompt to 'Sketch a time diagram showing the two payments.' The 'Solution' section includes a time diagram with a horizontal axis from 0 to 7, with payments of 1500 at time 2 and 1600 at time 7. Below the diagram is the calculation:  $L = 1,500(1 - .02)^2 + 1,600(1 - .02)^7 = 1,500(0.98)^2 + 1,600(0.98)^7 = 2,829.60$ . At the bottom, there is a 'Common Questions & Errors' section with a note about a common error: 'Common Error 1: Finding the amount  $2000v^{15-4+1}$  which is the principal repaid in the 4th payment. Subtract the answer from the annual payment amount to get the interest paid.'

Flag for review, record notes & email the professor

Monitor difficulty level

Got it wrong? Often there is a simple reason why

Helpful strategies to get you started

Graphs and other solution techniques demonstrated when applicable

Commonly encountered errors

# Practice. Quiz. Test. PASS.

- Review the results of your progress by topic
- Quickly identify topics that need improvement
- Test your strengths & weaknesses before exam day

Review Results				
Time Value of Money				
	Flagged	Skipped	Incorrect	Correct
Accumulation Functions and Effective Rates	0	0	2	14
Simple and Compound Interest	0	<input type="checkbox"/> 1	<input type="checkbox"/> 1	4
Force of Interest: Calculating PV and AV	2	<input type="checkbox"/> 1	11	1

actuarial e-learning portal

Home Seminar Administrator Seminar Users Support Log Off

GOAL Problem #  Go! Problem 1 of 5

Question Difficulty: Mastery

Andrew borrows a certain amount of money at an annual effective interest rate of 7%. He will repay this loan by making payments of 2000 at the end of each year for 15 years, using the amortization method. Calculate the amount of interest paid in the 4th payment.

A 888

B The correct formula is  $I_t = 2000(1 - v^{15-4+1})$ . You didn't add the 1 to the exponent.

C 1112

D 1134

E 1165

Help Me Start

The amount of interest paid in the  $t^{th}$  payment:  $I_t = R(1 - v^{n-t+1})$ .

Another way is to find the principal repaid and subtract it from the payment amount:  $I_t = R - P_t$ .

You can also find the outstanding balance at time  $(t - 1)$  and multiply by  $i$ :  $I_t = iB_{t-1}$ .

Solution

The principal repaid:  $P_4 = 2000v^{15-4+1} = 2000v^{12} = 2000(1.07)^{-12} = 888.02$

So,  $I_4 = R - P_4 = 2000 - 888.02 = 1111.98$

Calculator Solution

Common Questions & Errors

- Flag for review, record notes & email the professor
- Monitor difficulty level
- Got it wrong? Often there is a simple reason why
- Helpful strategies to get you started
- Multiple solutions provided when applicable
- Calculator solutions provided when available
- Commonly encountered errors