Application #1

Field of study: Business

Math Application: Simple Interest

Relevance: Simple interest is used in business for loans. People take out loans everyday to pay for an array of things; cars, houses, businesses, and any thing that you need to borrow money for. Interest is added to money borrowed so the lender can make a profit of the initial loan.

Math Formula: A = P(1 + rt)

* A = Total Accrued Amount (principal + interest)
* P = Principal Amount
* I = Interest Amount
* r = Rate of Interest per year in decimal; r = R/100
* t = Time Period involved in months or years

Example: You are taking out a loan for $10,000 with an interest rate of 10%. How much interest will you pay If the loan is for 5 years?

 Formula: A= $10,000(1+(10% x 5yrs.))

Convert 10% to 0.1

A= $10,000(1+(0.1 x 5))

A=$10,000 x 1.5

A=$15,000

To solve for I: I= $15,000a - $10,000p

I= $5,000

A = 10000(1 + (0.1 × 5)) = 15000

A = $15,000.00

I = $5,000

Resources:

Furey, Edward "[*Simple Interest Calculator A = P(1 + rt*)](http://www.calculatorsoup.com/calculators/financial/simple-interest-plus-principal-calculator.php)" From [*http://www.CalculatorSoup.com*](http://www.calculatorsoup.com/) - Online Calculator Resource.

Application#2

Field of study: Business

Math Application: Amortized loan payments

Relevance: Amortized loan payments typically are for use when a loan occurs over a long period of time. It’s the process of applying the interest over each month’s payment. The payments consist of two parts the interest amount and the principal amount. Combine them together to make the single periodic payment amount

Formula: A= P x [(r(1+r)60) ÷ ((1 + r)60 – 1)]

* A: is a single periodic payment amount
* I: is a periodic interest rate
* P: is the principal in the amortization formula
* n: is the number of payments

Example: A small business needs a loan for $10,000, the lender has a 5% interest rate for a period of 5 years. How much will the amortized loan payments be each month?

To Solve:

A = $10,000 [(0.05(1+0.05)60 ÷ ((1+0.05)60 -1)]

A = $10,000 (.9339592947 ÷ 17.6791858941)

A = $528.28

Resources:

Wittwer, J.W., "[*Amortization Calculation*](http://www.vertex42.com/ExcelArticles/amortization-calculation.html)," From [*Vertex42.com*](http://www.vertex42.com/), Nov 11, 2008.

Averkamp, H., “*What does it mean to amortize a loan?”* From <http://www.accountingcoach.com/blog/what-does-it-mean-to-amortize-a-loan>, Date unknown.

*Application#3*

Field of study: Audio

Math Application: Tempo

Relevance: Tempo is the rate in which audio is played. The more beats per minute the faster the audio will sound. So fewer bpm makes the audio sound slower. Tempo is used to control the speed in which audio is to be played back. Tempo exists in every single song created.

Math Formula: BPM = (BARS x 240) / SECONDS

Example: What is the determined tempo of a specific 9 bars that took place over the course of 20 seconds on that new hit single I just heard on the radio?

BPM = (BARS x 240) / SECONDS

BPM = (9 x 240) / 20

BPM = 2160 / 20

BPM = 108

Resources:

Composition Tools : *Tempo & Delay calculations / Rhyme chart* - Yala Abdullah. (n.d.). Retrieved October 1, 2015, from [http://www.angelfire.com/in2/yala/9mustool.htm#BPM](http://www.angelfire.com/in2/yala/9mustool.htm%23BPM)

Diamond-Manlusoc, L. (n.d.). Retrieved October 1, 2015, from  [http://study.com/academy/lesson/tempo-definition-and-uses-in-musical-forms.html](https://course.fso.fullsail.edu/class_sections/77969/discussions/%E2%80%8Bhttp://study.com/academy/lesson/tempo-definition-and-uses-in-musical-forms.html%E2%80%8B)