Careers in math

Business

CAREERS IN MATH Multifarious are the careers in which a sound knowledge and grasp of Mathematical s and principles find practical daily relevance. " These range from Mathematics teaching careers, at all levels of education, to those of engineers, architects and astronauts." (Donald, 1995, p. 58). In these realms, every branch of Mathematics is applicable, including those considered very irrelevant for practical purposes and application, such as matrices, complex numbers, complicated pre-calculus and calculus problems relating to heat energy transfer.

I interviewed a few professionals on their on-the-job, daily application of mathematical knowledge. These professionals are engaged in solving pre-calculus problems connected with their businesses. One of them was a participant in the project of salvaging the famous Pisa Tower, in Italy, which had began to tilt dangerously for a long time. He told me that trigonometrical calculations were needed to determine the least angle of deviation from the perpendicular to which the tower had to be yanked to prevent it from toppling.

The other professionals are sets of archeologists, one of whom was graphing asymptotes to illustrate the data generated from carbon-14 half-life dating of fossil specimens. The equation relating the original amount of carbon-14, A, in the fossil specimen to the amount, A(t), observed at time t is an exponential one which can be written thus

A = A(t) e raise to power (-kt)

where k is a constant.

This equation is an exponential relationship whose graphs are asymptotes. There are two possible asymptotes for the graph. The first is produced when A is plotted against t. The other is produced when the reverse is done, that is when t is plotted against A.

Both asymptotes arbitrarily approach the x and the y axes, and both have negative gradients except that the gradient of one is greater than that of the other. The difference in both asymptotes thus lies in the size of gradient.

A SITUATION FITTING AN EXPONENTIAL FUNCTION

Private Institutions in West Africa (a local magazine that gives updates on the private primary and post-primary institutions), gives the population projection of David Ambrose Multicultural College in the Mopti town of the republic of Mali as follows (this projection is an approximation based on observation of the last two years):

Year Population

(Y) (P)

2003 500

2004 1000

2005 2000

2006 4000

2007 6000

2008 6500

(According to Private Institutions in West Africa) These estimations were based on plans to found branches of this college in other areas of towns and local governments of the Republic of Mali.

Between the years 2003 and 2006, the population, from the data, doubles every year. Thus if we take P1, P2, P3 and P4 as the respective populations for these years, we have

P4= 2P3= 2P2= 2P1

Thus P4 = 2 X 2 X2 P1 = 2 X 2P2 = 2 P3

Taking the years 2003- 2006 as years 1 to 4, and as n, for the purpose of our formula,

the relationship between Y and P becomes

Y = (500) 2 raised to power (n-i), which is an exponential relationship.

If graph of year (Y) versus (P) is correctly plotted, a parabolic graph will be obtained for the years 2003 through 2006.

Reference List

David M. O, (2004). David Ambrose Multicultural College Private Institutions n West Africa 79, 17-21.

Donald, E (1995), Precalculus. London: Mitchell Beazley