UNIVERSIDADE FEDERAL DO PIAUÍ

COPESE
COORDENADORIA PERMANENTE DE SELEÇÃO
UNIVERSIDADE FEDERAL DO PIAUÍ

EXAME DE PROFICIÊNCIA DE LEITURA EM LÍNGUA ESTRANGEIRA

DATA: 28/01/2012 HORÁRIO: 8 às 11 HORAS

CADERNO DE PROVA

Idioma:
INGLÊS

Área de Pesquisa:
(2) CIÊNCIAS EXATAS E DA TERRA, ENGENHARIAS

LEIA ATENTAMENTE AS INSTRUÇÕES

- ☑ Esta prova é constituída de um texto técnico-científico em língua estrangeira, seguido de 5 (cinco) questões abertas relativas ao texto apresentado.
- ☑ É permitido o uso de dicionário impresso, sendo vedados troca ou empréstimo durante a realização do Exame.
- ☑ As respostas deverão ser redigidas em português e transcritas para a **Folha de Respostas** utilizando caneta esferográfica, **tinta preta** ou **azul, escrita grossa.**
- ☑ **A Folha de Respostas** será o único documento válido para correção, não devendo, portanto, conter rasuras.
- ☑ Será eliminado o candidato que identificar-se em outro espaço além daquele reservado na capa da **Folha de Respostas** e/ou redigir as respostas com lápis grafite (ou lapiseira).
- ☑ Nenhum candidato poderá entregar o Caderno de Prova e a Folha de Respostas antes de transcorridos 60 minutos do início do Exame.
- ☑ Em nenhuma hipótese haverá substituição da **Folha de Respostas**.
- ☑ Ao encerrar a prova, o candidato entregará, obrigatoriamente, ao fiscal da sala, o Caderno de Prova e a Folha de Respostas devidamente assinada no espaço reservado para esse fim.

Why Must I Learn Math?

by Mark Karadimos

What is math?

Those who do not appreciate math are those who do not understand what math is all about. That is why the nature of math desperately needs to be explained. Simply put, math is about solving problems.

How can math help me solve problems?

Ever since there were humans in existence, there have been problems to solve. Whether the problems were over basic requirements like sustaining sufficient amounts of food or major accomplishments like constructing multifunctional homes, problems such as these remain with us to this day. The peculiar thing about problems is that they all have similar properties.

What do all problems have in common?

Successful problem solvers are able to understand what is expected of the problems they face. In other words, they know all of the details surrounding the problem at hand, which is the most important step to solving problems. It requires an attention to detail and therefore patience. After examining the details, intelligent choices need to be made as well as the beginning steps of developing a strategy. The plan must be carried out in an order that makes sense. So careful planning, possibly by justifiable experimentation, must take place. Once an actual solution is obtained, it must be tested to determine whether or not it is reasonable.

What does problem solving have to do with math in school?

Every math problem that gets discussed, handled, and assigned forces us to use many, if not all, of the detailed methods of problem solving. Each individual problem becomes a small but important lesson for solving problems in general. Math is traditionally learned by first doing many smaller problems. Then the small problems are put together to solve bigger problems. For instance, in order to solve algebraic equations, being knowledgeable about addition, subtraction, multiplication, and division is a must. Ordering the steps to be carried out, evaluating expressions, and learning how and when equations are used must be learned, too.

Who commonly uses math?

Everybody uses math whether they realize it or not. Shoppers use math to calculate change, tax, and sales prices. Cooks use math to modify the amount a recipe will make. Vacationers use math to find time of arrivals and departures to plan their trips. Even homeowners use math to determine the cost of materials when doing projects.

Which professions use math?

Here is a small list of math orientated careers:

Accountants assist businesses by working on their taxes and planning for upcoming years. They work with tax codes and forms, use formulas for measuring interest, and spend a considerable amount of energy organizing paperwork.
Agriculturists determine the proper amounts of fertilizers, pesticides, and water to produce bountiful foods. They must be familiar with mixture problems.
Architects design buildings for structural integrity and beauty. They must know how to calculate loads for finding acceptable materials in design.
Biologists study nature to act in concert with it since we are so closely tied to nature. They use proportions to count animals as well as use statistics/probability.
Chemists find ways to use chemicals to assist us which entails purifying water, dealing with waste management, researching superconductors, analyzing crime scenes, making food products, ...
Computer Programmers create complicated sets of instructions called programs/software to help us use computers to solve problems. They must have strong logic skills.

Engineers (Chemical, Civil, Electrical, Industrial, Material) build products/structures/systems like automobiles, buildings, computers, machines, and planes, to name just a few examples. They cannot escape the frequent use of calculus!
Geologists use mathematical models to find oil and study earthquakes.
Lawyers argue cases using complicated lines of reason. That skill is nurtured by high level math courses. They also spend a lot of time researching cases.
Managers maintain schedules, regulate worker performance, and analyze productivity.
Medical Doctors must understand the dynamic systems of the human body. They research illnesses, carefully administer the proper amounts of medicine, read charts/tables, and organize their workload.
Meteorologists forecast the weather for agriculturists, pilots, vacationers, and those who are marine dependent.
Military Personnel carry out a variety of tasks ranging from aircraft maintenance to following detailed procedures.
Nurses carry out the detailed instructions doctors give them. They adjust intravenous drip rates, take vitals, dispense medicine, and even assist in operations.
Politicians help solve the social problems of our time by making complicated decisions.
Technicians repair and maintain the technical gadgets we depend on like computers, TV's, VCR's, cars, refrigerators,... They are always reading measuring devices, referring to manuals, and diagnosing system problems.
Tradesmen (carpenters, electricians, mechanics, and plumbers) estimate job costs and use technical math skills specific to their field. They deal with slopes, areas, volumes, distances and must have an excellent foundation in math.

Can I get a good job without learning a lot of math?

In all honesty, anything is possible. However, less and less labor intensive jobs are available. Workers in those fields are being replaced by machinery and robotics. Even when those jobs are available, the pay is usually substandard. In order to gain successful employment, technical skills must be learned. Someone has to fix all of those machines and robots.

What are employers looking for?

Employers are looking for three basic traits. They want their employees to be able to reason, work with technical equipment, and communicate their thoughts with other employees. It is clear that math deals with developing reason and working with technical equipment. It is not so clear how math affects communication. Successfully using math can improve the ability to speak and write more clearly. Language, at least the type needed for work, tends to be extremely structured and mathematical ability helps deal with that structure.

Source: http://www.mathguide.com/issues/whymath.html

EM HIPÓTESE ALGUMA SERÁ CONSIDERADA A RESPOSTA NESTE CADERNO

Depois de fazer a leitura do texto, responda às questões a seguir em português.

QUESTÃO 01 - Quais os tipos de problemas citados na seção **How can math help me solve problems**?

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QUESTÃO 02 - De acordo com texto, qual o passo mais importante para a resolução de problemas?

QUESTÃO 03 - O texto apresenta de forma ordenada como a matemática é tradicionalmente aprendida. Localize e escreva essa informação.

QUESTÃO 04 - Retire do texto as informações a respeito dos seguintes profissionais: *Engineers, Lawyers, Medical Doctors*.

QUESTÃO 05 - Com base na leitura do texto, quais as características básicas que os empregadores esperam encontrar em seus funcionários?