

Teaching Video & Analysis

$\mathcal{L} = \oint E \cdot dt$

$f(\omega) = \int_{-\infty}^{\infty} f(x) e^{-2\pi i x \omega} dx \frac{dt}{d\omega}$

$\nabla \cdot E = 0$
 $\nabla \times E = -\frac{1}{c} \frac{\partial H}{\partial t}$
 $i\hbar \frac{\partial}{\partial t} \Psi = H \Psi$

$\nabla \cdot H = 0$
 $\nabla \times H = \frac{1}{c} \frac{\partial E}{\partial t}$

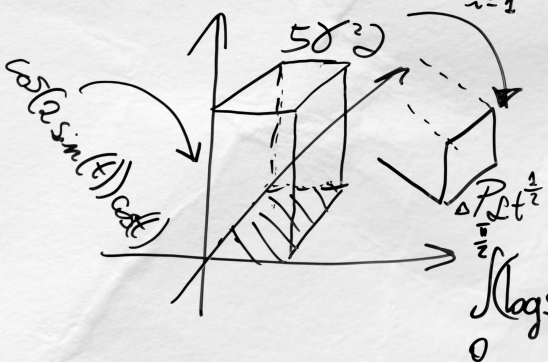
$\rho \left(\frac{\partial v}{\partial t} + v \cdot \nabla v \right) = -\nabla p + \nabla \cdot T + f$

$H = -\sum p(x) \log p(x)$

$\frac{1}{2} G^2 S^2 \frac{\partial^2 V}{\partial S^2} + r S \frac{\partial V}{\partial S} + \frac{\partial V}{\partial t} - r \cdot V = 0$

$+ \sum_{i=1}^n \frac{q_i}{2} H_i^M + c_s \frac{D}{Q} + c_o D + \frac{Q(p-D)}{2p} H^M + F_o N + F_o N + \sum_{i=1}^n D_i \cdot w_i \cdot d_i \cdot \frac{(1+w_i)}{F_x}$

$TC(Q, q_i, m_i) = \sum_{i=1}^n \left[\frac{D_i}{m_i \cdot q_i} S_i + c_i \cdot v \cdot D_i + \frac{q_i \cdot H_i^v}{2} \left(m_i \left(1 - \frac{D_i}{P_i} \right) - 1 + 2 \frac{D_i}{P_i} \right) \right] +$



$\left[\frac{d \Delta p(s, \phi)}{d \phi} \right] = \begin{bmatrix} \beta & -\beta \\ -\beta & 0 \end{bmatrix} \begin{bmatrix} \Delta p(s, \phi) \\ \Delta M(s, \phi) \end{bmatrix}$

$\int_0^{\pi} (\log \sin x)^2 dx = \int_0^{\pi} (\log \cos x)^2 dx = \frac{\pi}{2} \left\{ \frac{\pi^2}{12} + (\log 2)^2 \right\}$

Exceptional Teaching

In the clip shown above, from *In our Prime*, we see a teacher and a student. The teacher asks the student to solve the area of the triangle.

Why were such a clip chosen? You see, teaching isn't simply about providing answers to a problem given but about guiding students through the process of critical thinking and problem-solving. Teaching involves more than just giving information, showing students the way to work out solutions, but rather showing them what to think. This speaks to me quite loudly, that as a teacher, it isn't about "micro-management" but about encouraging students to find the way to do things efficiently, in all subjects. Life has problems, and if one does not know how to solve them efficiently, they won't go far in life. It'll just become more problematic and harder, and as a teacher, in everything I teach, I must demonstrate that efficiency.

The student asks the security guard, who was secretly a famous mathematician, (formerly North Korean but defected to the South Korean Government) to help him with the mathematics, a subject he was struggling with. He presents a simple problem, that is rigged with an error from the very beginning. Naturally, the student is confused as to why the mathematician replies that the student's answer is incorrect. He then starts off by addressing the main problem: the student blindly following rules, rather than questioning everything that is and will be done. This is important for all students, because it demonstrates whether they understand the concept or not.

By presenting a flawed problem, the teacher prompts the student to engage in deeper analysis and questioning. This helps the student develop critical thinking skills, which are essential for solving complex problems.

When the student realizes the error in the problem and receives criticism, it reinforces the idea that making mistakes is a natural part of the learning process. This boosts the student's confidence in tackling challenges and learning from them.

The mathematician involves the student in a hands-on activity rather than passive listening. This active engagement helps the student better understand the concepts and retain the information.

The equation demonstrates that not all problems are straightforward, and sometimes we encounter flawed or incomplete information. Learning to identify and address such issues is a valuable skill in both academics and real-life situations.

Facing a challenging or incorrect problem can teach students to persevere and approach problems from different angles. This resilience is crucial for success in any field.