Go steady but not too slow

A worm at one end of a rubber band. Worm: 1 centimeter per minute. Band: one meter to start, stretches by one meter every minute. When will the worm get to the other end, if ever?
The meaning of slow

It will, eventually, in about $10^{37}$ years.
One unit of credit

1 unit is (at least) 45 hours of work per semester

“Traditional accounting” for one unit:
- 1 hour of lectures per week
- 2 hours of discussion sections per week
- 3 hours of lab work per week

Ramifications for USC’s 15-week semester:
- 1 unit is 3 hours of work per week
- 16 units = 48 hours of work per week
- a 4-unit (math) class = 7 hours of independent work per week

And this is the bare minimum!

Key equality: \(24 \times 7 = 48 + 60 + 60\).
<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
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<tbody>
<tr>
<td>A</td>
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<td>94–90</td>
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<td>D-</td>
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<td>F</td>
<td>59 and below</td>
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</table>
Quotation number 1:

Most people would rather die than think; in fact, many do so.

A variation on Bertrand Russell (1872-1970)

Quotation number 2:

Tänka fritt är stort men tänka rätt är store.
A quotation:

Education is what you get when you read the fine print.
Experience is what you get when you do not.

Unknown, on investing.

A generalization:

Education is what you get when you ⟨DO⟩.
Experience is what you get when you ⟨DO NOT⟩.

Also:

Education is what is left after you forget everything you studied for the final exam.
The 7%-38%-55% rule

**Communication:**

- **Verbal** (words): 7%
- **Vocal** (tone of voice): 38%
- **Visual** (body language): 55%

**Source:** Albert Mehrabian (Professor of Psychology at UCLA, b. 1939) studies on communication in 1960’s.

**The fine print:** This only applies to messages pertaining to feelings and attitudes.

**Conclusion:** For a (math) lecture, make it 100% verbal (lecture words) and visual (blackboard and/or video).
Another meaning: stone

The people

Sir Isaac Newton (1642–1727), British (1666, 1687)
Gottfried Wilhelm von Leibniz (1646–1716), German (1675)

Jacob (Jacques, James) Bernoulli (1654–1705), Swiss
Johann (Jean, John) Bernoulli (1667–1748), Swiss

Leonhard Euler (1707–1783), Swiss

Pierre-Simon Laplace (1749–1827), French
Jean Baptiste Joseph Fourier (1768–1830), French
Augustin Louis Cauchy (1789–1857), French
Karl Theodor Wilhelm Weierstrass (1815–1897), German
Josiah Willard Gibbs (1839–1903), American
Vladimir Igorevich Arnold (1937–2010): Russian

**The Arnold Principle.** If a notion bears a personal name, then this name is not the name of the discoverer.

**The Berry Principle.** The Arnold Principle is applicable to itself. (M. Berry was a student of Arnold)

**Two other quotations by V. I. Arnold:**

*Mathematics is a part of physics. Physics is an experimental science, a part of natural science. Mathematics is the part of physics where experiments are cheap.*

*Genuine mathematicians do not gang up, but the weak need gangs in order to survive.*