Final exam is in three weeks – Do you have a study plan?
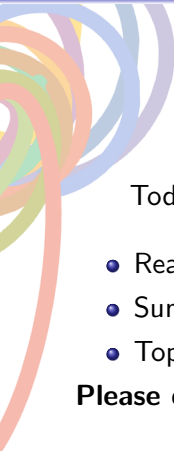
Applications for Slicing

Assaf Bar-Natan

"Money. It's a crime
Share it fairly, but don't take a slice of my pie
Money. So they say
Is the root of all evil today. "

−"Money", Pink Floyd

March 11, 2020

Today: practice for the short answer problems on the final

- Read a text on slicing problems
- Summarize the text
- TopHat

Please open the text (Week 9 on Quercus)

Consumer Surplus

Main points from the reading:

- The **demand curve** plots the price of a product as a function of how many will sell at that price.

- The difference between what a consumer pays and what they are willing to pay is called the **consumer surplus**.

- Adding up (savings per unit)x(number of units) $= \sum(p(x_i) - P)\Delta x$ gives the total amount of money saved by everyone.

- The above is called the commodity **consumer surplus**

- We can compute the the commodity consumer surplus using an integral

A new business is selling cat toys, and tracks the number of toys sold when priced at a certain price with a function, f. If they sell the cat toys at 5 dollars each, what is the expression for the consumer surplus?

✓ **58%** Answered Correctly

A	$\int_0^{f(5)} f^{-1}(x) - 5dx$		95
B	$\int_0^{f(5)} f(x) - 5dx$		22
C	$\int_0^{f^{-1}(5)} f(x) - 5dx$		28
D	$\int_0^{f^{-1}(5)} f^{-1}(x) - 5dx$		18

Laminar Flow

Main points from the reading:

- The laminar flow rate depends on the radius of the tube
- The total flow is the integral of the flow rate – use rings
- This reminds me of a WeBWork problem.... **Q:** which one?

- The **flux** is the amount of blood that passes through a section of the tube per unit time.
- **Poiseuille's Law** says that the flux is given by:

$$F = \frac{\pi P R^4}{8 \eta l}$$

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Submissions Closed

If the radius of an artery is reduced to half of its former value, the body still needs to maintain the same flux. This means that the blood pressure...

✓ **57%** Answered Correctly

A	Remains the same		2
B	Doubles		34
C	Triples		5
D	Quadruples		30
E	More than quadruples		93

March 11 at 1:21 AM results ▾   Segment Results   Compare with session

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164/170 answered

⊘ Ask Again

∧ ‹ ›   ● Open   ⊘ Closed   ≡ Responses   ✓ Correct   »

🔍 88%

For next time:
Go over WeBWork 9.1 and section 9.1