HW 1. Due Tue Sept 11 at the lecture

Problem 1.

Find real and imaginary parts of $(-1)^i$

Problem 2.

A time $t = 0$ a particle is represented by the wave function

$$\Psi(x,0) \;=\; \begin{cases} A\frac{x}{a} & a \geq x \geq 0 \\ A\frac{b-x}{b-a} & b \geq x \geq a \\ 0 & \text{otherwise} \end{cases}$$

where A, a, and b are constants.

(a) Normalize Ψ (i.e., find A in terms of a and b)

(b) Where is the particle most likely to be found, at $t = 0$

(c) What is the probability of finding the particle to the left of a?

(d) What is the expectation value of x?

Problem 3.

Problem 6.51 from *Tipler & Llewellyn*, 5 ed.