Group Problem - direct translation
This is the function that calculates the area of a trapezoid:

\[
\text{area-of-trapezoid}(base1, base2, height) = \frac{1}{2} \cdot (base1 + base2) \cdot height
\]

Translate this function into Racket. Provide the full design recipe.

Group Problem - pair?
Write a Racket function \texttt{pair?} which consumes 4 Nats. \texttt{pair?} produces \texttt{true} if any two of the consumed parameters are the same, and \texttt{false} otherwise. For this question, you may only use Boolean expressions (no \texttt{cond} allowed).
Include a full design recipe.
Group Problem - pokemon-battle
You've finally made it to the CS135 Gym and it is time to battle. Here are the rules:

- only 3 types are allowed: Fire, Water and Rock
- Water beats both Fire and Rock
- Rock beats Fire
- Any type can beat itself

Write a function `pokemon-battle` that consumes 2 Pokemon types and produces the winning type according to the rules above. Use the symbols 'fire', 'water' and 'rock to represent the types. Include a design recipe.

Group Problem - loan-interest
The Bank of Amestris issues loans to its customers, which have either a 'standard or 'premium account. Their loan policies are as follows:

- If a customer has a bad credit history, the Bank refuses to give them a loan.
- Otherwise, if the duration of a loan is no more than 3 months, or the amount of money loaned is less than $500, no interest is paid on the loan.
- Otherwise, if a customer has a 'premium account, and the loan amount is no more than $25,000, interest is calculated based on the 'premium rate of 10%.
- Otherwise, interest is calculated on the 'standard rate of 15%.

Interest is calculated by multiplying the amount of the loan, the duration, and the interest rate together. You may assume that the amount and duration of a loan are both positive.

Write a function `loan-interest`, which consumes the amount and duration of the loan in months, a Boolean which is true if the customer has a bad credit history, and a symbol representing the account-type. The function will produce the amount of interest that the customer must pay on the loan, or −1 if the Bank refuses to give a loan.