Problem of the Week
Problem B and Solution
Ride with Rebu or Tyfl?

Problem

Charges vary with different ride services.

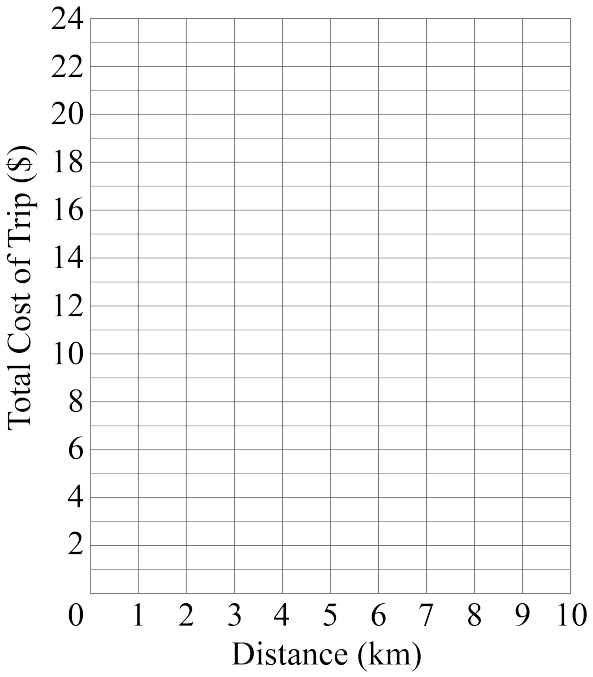
Rebu charges $3.00 when you get in the car, and then $2.00 per km.
Tyfl charges $5.00 when you get in the car, and then $1.50 per km.

(a) On the given grid, plot the cost of a ride with Rebu for each whole number distance from 0 to 10, and connect the points to form a line. Then do the same in a different colour for the cost of a ride with Tyfl.

(b) If your ride is a 5 km distance, which company gives the better price?

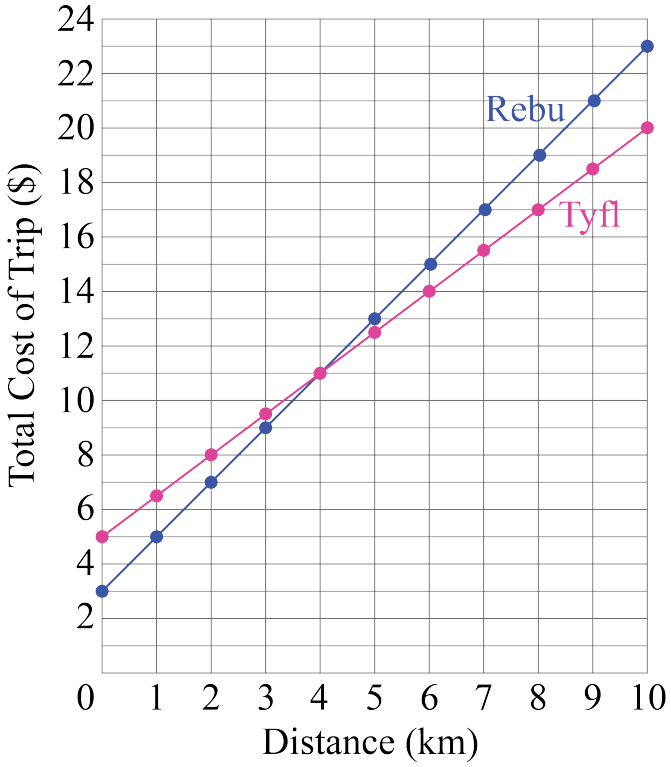
(c) For what distance will the cost be the same for both Rebu and Tyfl?

(d) For what distances will Rebu be cheaper than Tyfl?



Solution

(a) The cost for each ride service is shown on the following grid.



(b) At 5 km, the point for Tyfl is below the point for Rebu. That means that the price with Tyfl is cheaper than the price with Rebu for a distance of 5 km.

The actual cost of the ride with Tyfl is $\$5 + \$1.5 \times 5 = \$12.50$ and the actual cost of the ride with Rebu is $\$3 + \$2 \times 5 = \$13$, so the difference is only \$0.50.

(c) The cost is the same at 4 km. To prove this without the grid, we can determine that for a distance of 4 km, the cost with Rebu is $\$3 + \$2 \times 4 = \$11$, and the cost for Tyfl is $\$5 + \$1.50 \times 4 = \$11$. Thus, they are equal.

(d) Rebu will be cheaper than Tyfl for any distance less than 4 km.