

Piecewise Functions: Silvercar Pricing

The startup “Silvercar” currently rents Audi A4s in Phoenix for a flat fee of \$79 a day (up to 24 hours of use, unlimited miles). The management of Silvercar are considering a new pricing scheme called “Silverwings” that rents the cars to people who want to borrow a car for a few hours to run errands. Silverwings service would cost \$24 for the first 4 hours (regardless of time used), and then after 4 hours, the cost would be an additional \$8 an hour for the actual time used past the initial 4 hours (partial hours allowed). For example, if you rent the car for 6.5 hours, the cost would be $\$24 + 2.5 \times \$8 = \$44$.

- a) Make a table that shows the traditional Silvercar pricing scheme for 1 to 8 hours of rental, and then add a column that compares this to the Silverwings pricing strategy.
- b) Sketch a graph of the traditional pricing scheme for Silvercar rentals for 1 to 8 hours.
- c) Sketch a graph of the Silverwings pricing scheme for 1 to 8 hours of rental.
- d) Write a piecewise function for the Silverwings pricing scheme, $C(t)$, where t is the number of hours the car is rented for.
- e) For a customer considering the Silverwings plan, where is the break-even point (in hours) where the customer might as well just rent the car using the traditional Silvercar pricing strategy?