Question #57110, Economics / Microeconomics

Tippalee Ventures Inc. provides helicopter tours of the wilderness. The fixed monthly cost for the helicopter, gear, and airport space is $42,500. The variable cost per tour is $6,500. The helicopter tours sell for $3,500 per person, and the helicopter seats three customers.
  a) Assuming every helicopter is filled to capacity, what is the break-even volume for the company?
  b) What is the break-even volume if each helicopter only carries two customers?

Solution:
Costs function:
$C(x) = \$42,500 + \$6,500 \times x$
Revenue function:
  a) Three customers per tour: $R_3(x) = \$3,500 \times 3x$
  b) Two customers per tour: $R_2(x) = \$3,500 \times 2x$
Break-even volume:
  a) in case the helicopter is filled to capacity:
      $C(x) = R_3(x)$;
      $\$42,500 + \$6,500 \times x = \$3500 \times 3x$;
      $\$4,000 \times x = \$42,500$;
      $x = 10.625 \approx 11$ tours
  b) in case the helicopter carries two customers:
      $C(x) = R_2(x)$;
      $\$42,500 + \$6,500 \times x = \$3500 \times 2x$;
      $\$500 \times x = \$42,500$;
      $x = 85$ tours
Answer: 11 tours for the helicopter filled to capacity; 85 tours for the helicopter carrying two customers.