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Section II Part A: Graphing Calculator MAY BE USED.
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3. It is estimated that at the current rate of consumption,  $r$  gallons per year, the oil supply of the earth will last 200 years. However, the rate of consumption,  $R(t)$ , is increasing at the rate of 5% per year; that is  $\frac{dR}{dt} = 0.05R$ .
- (a) In terms of  $r$ , how many gallons of oil are currently available?
  - (b) Use the given differential equation to find  $R(t)$ .
  - (c) If no additional oil is discovered, how long, to the nearest year, will the current oil supply actually last? Show how you arrived at your solution.

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- (a) In terms of  $r$ , how many gallons of oil are currently available?