TeX code compiled with \documentclass{beamer} using the Amsterdam theme.

<nowiki> \begin{document}

\begin{frame}

```
  \large Beginning at time $t=0$, a particle moves along the number
  line so that its position after $t$ seconds is
  $$f(t)=t^3-15t^2+72t$$
  \vskip 15pt
```

```
  \begin{enumerate}[a)]
      \item Find the velocity and acceleration at time $t$.
      \item At what time(s) is the particle moving 3 units/sec in the
      negative direction?
      \item  At what time(s) is the particle at rest?
      \item When is the particle moving in the positive direction?
      \item At what times is the particle speeding up?
  \end{enumerate}
```

\end{frame}

\begin{frame}

```
  \large Given on the board are the graphs of the {\bf velocity} functions
  of two particles. For each particle, answer the following questions.
  \vskip 15pt
```

```
  \begin{enumerate}[a)]
      \item When is it speeding up? When is it slowing down?
      \item When is it moving in the positive direction?
      \item When is it at rest?
  \end{enumerate}
```

\end{frame}

\begin{frame}

```
  \large The cost, in dollars, of producing x yards of a certain fabric is
  $C(x)=1300+14x-0.1x^2+.0005x^3$.
  \vskip 15pt
```

```
  \begin{enumerate}[a)]
      \item Find the marginal cost function.
      \item Find $C'(300)$. This is the rate at which costs are increasing
      with respect to the production level. Use $C(300)$ and $C'(300)$ to
      estimate $C(301)$.
      \item Find the actual value of $C(301)$ and compare.
```

```
  \end{enumerate}
```

\end{frame}

\begin{frame}

```
  \large If a ball is thrown vertically upward with a velocity of 128 ft/s,
  then its height after $t$ seconds is $s = 128t - 16t^2$ ft.
  \vskip 15pt
```

```
  \begin{enumerate}[a)]
      \item What is the velocity and acceleration after $t$ seconds?
      \item What is the maximum height reached by the ball?
  \vskip 15pt
```

```
      \item What is the velocity of the ball when it is 240 ft above the
      ground on its way up? (Consider up to be the positive direction.)
      \item What is the velocity of the ball when it is 240 ft above the
      ground on its way down?
  \end{enumerate}
```

\end{frame}

\begin{frame}

```
  \large Sodium chlorate crystals are easy to grow in the shape of cubes
  by allowing a solution of water and sodium chlorate to evaporate slowly.
   \vskip 15pt
```

```
  If $V$ is the volume of such a cube with side length $x$, calculate
  the derivative when $x = 4$ mm. What's the physical interpretation of
  $V'(4)$, in plain English?
```

\end{frame}

\begin{frame}

```
  \large A stone is dropped into a lake, creating a circular ripple that
  travels outward at a speed of 60 cm/s.
  \vskip 15pt
```

```
  \begin{enumerate}[a)]
      \item Find the rate at which the area within the circle is increasing
      after $t$ seconds.
      \item Compare this rate at time $t$ versus time $2t$. That is,
      after twice as much time has passed, how much faster is the area
```

```
increasing?
      \item When the radius of the circle has doubled, how much has
      the rate $dA/dt$ increased?
  \end{enumerate}
```

\end{frame}

\begin{frame}

```
  \large A spherical balloon is being inflated. Find the rate of
  increase of the surface area ($S = 4\pi r^2$) with respect to the
  radius $r$ when $r$ is each of the following.
  \vskip 15pt
```

```
  \begin{enumerate}[a)]
      \item 1 ft
      \item 5 ft
      \item 8 ft
  \end{enumerate}
```

\end{frame}

\begin{frame}

```
  \large Newton's Law of Gravitation says that the magnitude $F$ of
  the force exerted by a body of mass $m$ on a body of mass $M$ is
  $$F = \frac{GmM}{r^2}$$
  where $G$ is the gravitational constant and $r$ is the distance
  between the bodies.
  \vskip 15pt
```

```
  \begin{enumerate}[a)]
      \item Find $dF/dr$.
      \item What's the physical interpretation of $dF/dr$, in plain
      English?
      \item What does the minus sign indicate?
  \end{enumerate}
  \vskip 15pt
```

```
  (The value of $G$ depends on the units you're using. In case
  you're interested, in metric it's $6.67\times 10^{-11} Nm^2/{kg}^2$.
  Note that $10^{-11}$ is really, really small.)
```

\end{frame}

\end{document} <\nowiki>