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

## ＜nowiki＞\begin\｛document\} \(｛document\} 

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## \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
```

```
ๆ------------------------------------------------------ -- 
    \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}
```

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```
\-
    \(\$ C(x)=1300+14 x-0.1 x^{\wedge} 2+.0005 x^{\wedge} 3 \$\).
    \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 \(\$ C^{\prime}(300) \$\) to
        estimate \$C(301)\$.
        \item Find the actual value of \(\$ C(301) \$\) and compare.
    \end\{enumerate\} }
```

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

## Last

update：${ }_{2014 / 09 / 06}$ calculus：resources：calculus＿flipped＿resources：derivatives：2．7＿sciences＿texhttp：／／www2．math．binghamton．edu／p／calculus／resources／calculus＿flipped＿resources／derivatives／2．7＿sciences＿tex
2014／09
03：02


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```
    by allowing a solution of water and sodium chlorate to evaporate slowly.
    \vskip 15pt
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ｰーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーー
    If \(\$ V \$\) is the volume of such a cube with side length \(\$ x \$\), calculate
    the derivative when \(\$ x=4 \$ \mathrm{~mm}\). What's the physical interpretation of
    \$V'(4)\$, in plain English?
```

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travels outward at a speed of 60 cm/s.
\vskip 15pt
```

```
\ \ - - - - - - - - 
    \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}
```


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```
\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
```


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


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```
\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
```



```
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    \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
L - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - J
```



```
    (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.)
```

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From:
http://www2.math.binghamton.edu/- Binghamton University Department of Mathematics and Statistics
Permanent link:
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Last update: 2014/09/06 03:02

