

## Practicing the Chain Rule

Remember

$$\frac{dy}{dx} = \frac{dy/dt}{dx/dt}$$

Calculate the derivative  $\frac{dy}{dx}$  of the following functions, and then find the equation of the line tangent to the curve at the given point:

1.  $x = 3t^2 + 2$ ,  $y = 7t$ ,  
 $t = 1$

4.  $x = \sec 2t$ ,  $y = \sec^2 2t$ ,  
 $t = \pi/6$

2.  $x = \sin 3t$ ,  $y = \cos 2t$ ,  
 $t = \pi/3$

5.  $x = \frac{3}{(6t^3 - t^2)^4}$ ,  
 $y = (t + 2\sqrt{t})^3$ ,  
 $t = 1$

3.  $x = \sin^3(\pi t/3)$ ,  
 $y = (t^3 + 2t^2)^5$ ,  
 $t = 2$

6.  $x = \sec^3 t$ ,  $y = \cos^3 t$ ,  
 $t = \pi/4$

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