Find the limit, if exists. You must show work!!

1. $\lim_{x\to 0}\frac{\sin x}{3x}$

2. $\lim_{x\to 3}\sqrt{x-3}$

3. $\lim_{x\to 1^-}\frac{|x-1|}{x-1}$

4. $\lim_{x\to 3}\frac{\sqrt{x-3}-5}{x-4}$

5. $\lim_{x\to \frac{\pi}{6}} tan(2x)$

Find the derivative of each function.

6. $f(x)=3x^3-2x-\pi$

7. $y=\sqrt{x}+\sqrt[3]{x^2}$

8. $h(x)=3\cos x$

9. $k(x)=\cot x$

10. $f(x)=ax^{n-1}$

Solutions posted later....(:P)