The six derivatives of the primary three as well as the reciprocal trig ratios. Print these off so you can have them in front of you always.

$$\frac{d}{dx}(\sin x) = \cos x$$
$$\frac{d}{dx}(\cos x) = -\sin x$$
$$\frac{d}{dx}(\tan x) = (\sec x)^2$$
$$\frac{d}{dx}(\sec x) = \sec x \cdot \tan x$$
$$\frac{d}{dx}(\csc x) = -\csc x \cdot \cot x$$
$$\frac{d}{dx}(\cot x) = -(\csc x)^2$$

There really are another 6 more with these if you consider the chain rule with them. It just an extension of the derivative of the outside times the derivative of the inside function.

If a function is in the form y = sin (u) where u = f(x) then $y' = \sin(u) \bullet u'$.
Look at the next two examples to serve as a guide for all.

$$1)\quad y = \sin(x^3) \ \ vs \ \ 2) \quad y = \sin^3(x) = (\sin x)^3 \quad \textit{note the difference}$$

$$\textit{In } 1) \ \ u = x^3$$

$$\textit{so } y' = \cos(u) \bullet u'$$

$$\textit{therefore } y' = \cos(x^3) \bullet \frac{d}{dx}(x^3) = \cos(x^3) \bullet 3x^2 = 3x^2\cos(x^3) \qquad \{DONE\}$$

Watch how the second example is done.

$$y = \sin^3 x = (\sin x)^3 \qquad u \ \textit{is now} \ \sin x$$

$$\textit{therefore} \ \ y' = 3(\sin x)^2 \bullet \frac{d}{dx}(\sin x) = 3\sin^2 x \bullet \cos x \quad \textit{Done}$$