Solve:

1) What is $\frac{d}{dx}(-8\sin x + 10\cos x)\Big|_{x=2\pi}$?

$\frac{dy}{dx} = -8\cos x - 10\sin x$

$-8\cos(2\pi) - 10\sin(2\pi)$

$= \boxed{-8}$

2) Given $k(x) = 4\cos x$.

What is $\frac{dk}{dx}$?

$\frac{dk}{dx} = -4\sin x$

3) What is $\frac{d}{dx}(2\sin x - 7\cos x)$?

$\frac{dy}{dx} = 2\cos x + 7\sin x$

4) Given $d(x) = -4\cos x$.

What is $\frac{dy}{dx}\Big|_{x=3\pi/2}$?

$\frac{dy}{dx} = 4\sin x$

$4\sin\left(\frac{3\pi}{2}\right) = \boxed{-4}$

5) What is $\frac{d}{dx} - 5\cos(x) + 4\csc(x)$?

$\frac{dy}{dx} = 5\sin x - 4\csc x \cdot \cot x$

6) Given $a(x) = 2\csc(x) - 3\cos(x)$, what is $a'(x)$?

$a'(x) = -2\csc x \cdot \cot x + 3\sin x$

7) What is $\frac{d}{dx}\tan(x)$?

$\frac{dy}{dx} = \sec^2 x$

8) Given $k(x) = 2\cot(x) - 4\tan(x)$.

What is $\frac{dk}{dx}$?

$\frac{dk}{dx} = -2\csc^2 x - 4\sec^2 x$