CALCULUS
Derivatives of trigonometric functions
NEW

NEW 0360-1. Differentiate $f(x) = -\pi x^8 - e^3 \cos x$.

NEW 0360-2. Differentiate

$$u(q) = -q^9 + 2e^q + (\sin(2)) - \tan q.$$

NEW 0360-3. Differentiate $p(t) = t^4 \sec t$.

NEW 0360-4. Differentiate $B(w) = \dfrac{4e^w - \csc w}{\tan w}$.

NEW 0360-5. Differentiate $F(x) = \dfrac{x^2 e^x - \tan x}{e^x \cot x}$.

NEW 0360-6. Find an equation of the tangent line to the graph of $y = \dfrac{4e^{-\pi/2}e^{x} - \cot x}{2e^{-\pi/2}e^{x}\sin x}$ at the point $(\pi/2, 2)$.

0360-7. NEW A laser pointer, resting on the ground, is casting red light on a blue wall that is 14 ft away, as in the diagram. It is being turned upward, and its angle with the ground is denoted α (radians). Let y denote the distance from the point of light on the wall straight down to the ground.

a. Find a formula for y in terms of α.

b. At the moment when $\alpha = \pi/3$,

i. compute y and

ii. compute how fast y is changing with respect to α.