6. Differentiate $y = \dfrac{-5 + \sin x}{x + \cos x}$.

11. Find the equation of the tangent line to the curve $y = \dfrac{-2}{\sin x + \cos x}$ at the point $(0, -2)$.

15. For what values of x in $[0, 2\pi]$ does the graph of $y = \dfrac{\cos x}{2 + \sin x}$ have a horizontal tangent?

16. A mass on a spring vibrates horizontally on a smooth level surface (see the figure). Its equation of motion is $x(t) = 1\sin t$, where t is in seconds and x in centimeters.

    (a) Find the velocity at time t.

    (b) After finding the velocity of the mass at time $t = 2\pi/3$, in what direction is it moving at that time?

36. Differentiate $y = e^{x\cos(x)}$.

38. Differentiate $F(z) = \sin\left(\frac{z-4}{z+4}\right)$.

45. Differentiate $y = \sqrt{x + \sqrt{x}}$.

46. Differentiate $y = \sqrt{x + \sqrt{x + \sqrt{x}}}$.