$$\lim_{t \to 0} \frac{\sqrt{t+2}\,\sin t}{t} = 1 = \sqrt{t+2}$$

$$H'(x) = g'(f(x)) \cdot f'(x)$$

$$= g'\left(f\left(\frac{2}{3}\right)\right) \cdot f'\left(\frac{2}{3}\right)$$

$$= g'(0) \cdot -\frac{3}{2}$$

$$= 1 \cdot -\frac{3}{2}$$

(A)

$$\begin{aligned} J'(x) &= f'(g(x)) \cdot g'(x) \\ &= f'(g(1)) \cdot g'(1) \\ &= f'(-0.7) \cdot g'(1) \\ &= -\frac{3}{2} \cdot -1 \end{aligned}$$

(C)

$x^3 + 3x^2 + 2x - 1 = 5 \qquad x = 1$

$f(1) = 5 \qquad g(5) = 1$

$g'(5) = \frac{1}{f'(1)}$

$f' = 3x^2 + 6x + 2$

$f'(1) = 11$

$= \frac{1}{11}$

(24) $y = \cos^{-1}(x^2)$

$$\frac{dy}{dx} = \frac{-1}{\sqrt{1-(x^2)^2}} \cdot 2x$$

(33) $y = e^{\cos^{-1} x}$

$$\frac{dy}{dx} = e^{\cos^{-1} x} \cdot \frac{-1}{\sqrt{1-x^2}}$$