SOLUTION In order to apply Equation 2, we first rewrite the function by multiplying and dividing by 7:

Note that $\sin 7x \neq 7 \sin x$.

$$\frac{\sin 7x}{4x} = \frac{7}{4} \left(\frac{\sin 7x}{7x} \right)$$

Notice that as $x \to 0$, we have $7x \to 0$, and so, by Equation 2 with $\theta = 7x$,



(a) Find an equation of the tangent line to the curve $y = x \cos x$ at the point $(\pi, -\pi)$.

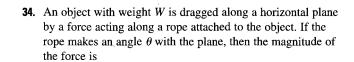


(b) Illustrate part (a) by graphing the curve and the tangent line on the same screen.



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26. (a) Find an equation of the tangent line to the curve $y = \sec x - 2\cos x$ at the point $(\pi/3, 1)$.



$$F = \frac{\mu W}{\mu \sin \theta + \cos \theta}$$

27 .	(a)	If	f(x)	= 2	2x +	$\cot x$	find	f'((x)
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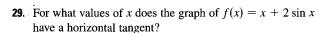
(b) Check to see that your answer to part (a) is reasonable by graphing both f and f' for $0 < x < \pi$.



28. (a) If $f(x) = \sqrt{x} \sin x$, find f'(x).



(b) Check to see that your answer to part (a) is reasonable by graphing both f and f' for $0 \le x \le 2\pi$.



30. Find the points on the curve $y = (\cos x)/(2 + \sin x)$ at which the tangent is horizontal.

(b) When is this rate of change equal to 0? (c) If W = 50 lb and $\mu = 0.6$, draw the graph of F as a function of θ and use it to locate the value of θ for which $dF/d\theta = 0$. Is the value consistent with your answer to part (b)?

(a) Find the rate of change of F with respect to θ .

35-44 □ Find the limit.

$$(35.)\lim_{t\to 0}\frac{\sin 5t}{t}$$

$$36. \lim_{t\to 0} \frac{\sin 8t}{\sin 9t}$$