

Chapter 3 extra problems:

Find the derivative of each:

101. $f(t) = \sqrt{t} \cos t$

102. $f(t) = \frac{1}{\sqrt{t}} \cos t$

103. $y = \sin \theta \cos \theta$

104. $y = \sin \theta \sin \theta$

105. $y = 4x^7 \cos x$

106. $y = \pi x^{32} \cos x$

107. $\sqrt{2x} \sin x$

Find the derivative of each:

110. $y = \frac{2}{x^2} - \frac{x}{8} - x^2 \sqrt{x} + \frac{4\sqrt{x}}{x}$

111. $f(x) = x^2 \tan x$

112. $f(x) = \frac{x^2 + 3x}{3x^2 - 1}$

Find the derivative of each:

120. $y = \cos^4(3x + 1)$

121. $y = \frac{\tan 2x}{x^2 + 5x}$

122. $y = \frac{4}{x} - \frac{3x}{2} + 6x^2 \sqrt{x} - \frac{3x^2}{\sqrt{x}}$

Find the derivative of each:

130. $y = 3x^3 \sqrt{4x + 3}$

131. $y = \sqrt{\sin^2 x + x^3}$

132. $y = \frac{8}{x} - \frac{3x}{5} + 4x^2 \sqrt{x} - \frac{4x^2}{\sqrt{x}}$

133. $y = (x^2 + \sin^2 x)^6$

134. Find the tangent line to $y = 3x + 4\sqrt{x}$ at the point where $x = 1$

Find the derivative of each:

140. $y = (x^2 + \sin^2 x)^6$

141. $y = \frac{x^2 - 4x}{\sin 3x}$

142. $y = \cos^5(4x)$

143. $y = 4x^5 \cos 6x$

144. $y = (2x - 1)^6 (3x + 4)^8$ (simplify by factoring)