Product Rule and Quotient Rule ... Set 2

Exercises

1. Find the derivative of each of the following:

a) $x \tan x$

b) $x^2 e^{-x}$

c) $5e^{-2x} \sin 3x$

d) $3x^{1/2} \cos 2x$

e) $2x^6 (1+x)^5$

f) $x^{-2}(1+x^2)^{1/2}$

g) $xe^x \sin x$

h) $7x^{3/2} e^{-4x} \cos 2x$

Answers

1. a) $x \sec^2 x + \tan x$

     b) $x(2-x)e^{-x}$

     c) $5e^{-2x}(3\cos 3x - 2\sin 3x)$

     d) $\dfrac{3}{2}x^{-1/2}(\cos 2x - 4x\sin 2x)$

     e) $2x^5(1+x)^4(6+11x)$

     f) $-x^{-3}((1+x^2)^{-1/2}(2+x^2)$

     g) $e^x[(1+x)\sin x + \cos x]$

     h) $\dfrac{7}{2}x^{1/2}e^{-4x}(3\cos 2x - 8x\cos 2x - 4x\sin x)$