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a) $D\left((5-x)\cdot(x+3)\right) = (x+3)D(5-x) + (5-x)\cdot D(x+3)$

   $\underbrace{}_{g} \quad \underbrace{}_{g} \qquad g \cdot Df \quad + \quad f \quad Dg$

$= (x+3)\cdot(D5-Dx) + (5-x)(Dx+D3)$

$= (x+3)\cdot(0-1) + (5-x)(1+0)$

$= -x-3+5-x = \boxed{-2x+2} = 2(1-x)$

b) $D\left(7x\left(8-x^2\right)\right) = (8-x^2)D(7x)+(7x)D(8-x^2)$

$= (8-x^2)\cdot(7Dx) + (7x)(D8-Dx^2)$

$= (8-x^2)\cdot7 + (7x)(0-2x)$

$= 56-7x^2-14x^2$

$= \boxed{-21x^2+56} = 7(8-3x^2)$

c) $D\left((x^2-2x)\cdot(2x-4)\right)$

$= (2x-4)D(x^2-2x) + (x^2-2x)\cdot D(2x-4)$

$= (2x-4)(2x-2) + (x^2-2x)\cdot2$

$= 4x^2-4x-8x+8 + 2x^2-4x$

$= \boxed{6x^2-16x+8}$

d) $D\left((5-x)\cdot2x\cdot(x+8)\right) = D\left((5-x)\cdot(2x^2+16x)\right)$

$= (2x^2+16x)\cdot D(5-x) + (5-x)D(2x^2+16x)$

$= (2x^2+16x)\cdot(-1) + (5-x)\cdot(4x+16)$

$= -2x^2-16x+20x+80-4x^2-16x$

$= \boxed{-6x^2-12x+80}$