

Differentiation examples: block 1

Question	Rules	Hints	Answer
x^7	power		$7x^6$
$3x^2$	power		$6x$
$9x^4$	power		$36x^3$
$10x^{-2}$	power		$-20x^{-3} = -\frac{20}{x^3}$
$5x^{-7}$	power		$-35x^{-8} = -\frac{35}{x^8}$
$\frac{3}{x^3}$	power	$= 3x^{-3}$	$-9x^{-4} = -\frac{9}{x^4}$
$\frac{7}{x^2}$	power	$= 7x^{-2}$	$-14x^{-3} = -\frac{14}{x^3}$
$9x$	power		9
$27x$	power		27
$\frac{27}{x}$	power	$= 27x^{-1}$	$-27x^{-2}$
$\frac{13}{x}$	power		$-13x^{-2}$
$-\frac{9}{x^2}$	power		$18x^{-3}$
37	constant		0
$37 + x$			1
$x^3 + x^4$			$3x^2 + 4x^3$
$\frac{2}{x} + 9x$			$-2x^{-2} + 9 = 9 - 2x^{-2}$
$\sin(x)$	trig		$\cos(x)$
$\sin(3x)$	trig		$3 \cos(3x)$
$\cos(9x)$	trig		$-9 \sin(9x)$
$\cos(5x) + x^3$			$3x^2 - 5 \sin(5x)$
$\cos(x) + \sin(x)$			$\cos(x) - \sin(x)$
$\cos(2x) + \sin(3x)$			$3 \cos(3x) - 2 \sin(2x)$
$7x^3$			$21x^2$
$\cos(9x) - \frac{1}{x}$			$x^{-2} - 9 \sin(9x)$
$27 + \cos(3x)$			$-3 \sin(3x)$
$\exp(x)$	exponential		$\exp(x)$
$\exp(7x)$	exponential		$7 \exp(7x)$
e^x	exponential	$= \exp(x)$	$\exp(x)$
e^{3x}	exponential		$3 \exp(3x)$
e^{9x}			$9 \exp(9x)$
x^9			$9x^8$
e^{2x}			$2 \exp(2x)$

