Odd One Out – Differentiating $\sin kx$ and $\cos kx$

Select the odd one out from each row.

$y = 2\sin x$	$y = 2\cos x$	$\frac{dy}{dx} = -2\sin x$
$y = 2\sin\frac{1}{2}x$	$\frac{dy}{dx} = \cos\frac{1}{2}x$	$\frac{dy}{dx} = \cos x$
$f(x) = 2\cos x$	$\frac{dy}{dx} = -2\sin x$	$f'(x) = -2\sin x$
$\frac{dy}{dx} = -8\cos 8x$	$\frac{dy}{dx} = 8\cos 8x$	$y = \sin 8x$
$y = 6\sin\frac{2}{3}x$	$\frac{dy}{dx} = 9\cos\frac{2}{3}x$	$\frac{dy}{dx} = 4\cos\frac{2}{3}x$
$f'(x) = -5\sin\frac{5}{6}x$	$f(x) = 6\cos\frac{5}{6}x$	$f'(x) = 5\sin\frac{5}{6}x$
$f(x) = 4\cos\frac{1}{2}x$	$f'(x) = -2\sin\frac{1}{2}x$	$f'(x) = 2\cos\frac{1}{2}x$
$f'(x) = -6\sin 2x$	$f'(x) = -\frac{3}{2}\sin 2x$	$f(x) = 3\cos 2x$
$\frac{dy}{dx} = 2\cos 2x - 3\sin 3x$	$y = \sin 2x + \cos 3x$	$\frac{dy}{dx} = 2\cos 2x + 3\sin 3x$
$f'(x) = -18\sin 12x$	$f'(x) = 4\sin x - 8\sin 4x - 14\sin 7x$	$f(x) = 2\cos 4x - 4\cos x + 2\cos 7x$
$y = x^2 + 4\cos 3x$	$\frac{dy}{dx} = x^2 - 12\sin 3x$	$\frac{dy}{dx} = 2x - 12\sin 3x$
$\frac{dy}{dx} = -10\cos 5x$	$y = \frac{1 + 2xsin\,5x}{x}$	$\frac{dy}{dx} = -\frac{1}{x^2} + 10\cos 5x$