1. Suppose  $y = \frac{\cos(x) + 1}{x^2}$ . Find  $\frac{dy}{dx}$ .

2. Suppose  $f(x) = \sin(x)(x^3 - 4x^2)$ . Find f'(x).

3. Suppose  $y = \frac{xe^x}{1+x^2}$ . Find y'.

4. Information about two functions f and g and their derivatives is given in the table below. Suppose  $h(x) = x^3 + f(x) \cdot g(x)$ . Find h'(2).

x	1	2	3	4	5	6
f(x)	-3	-2	1	5	6	3
f'(x)	5	3	2	1	0	-2
g(x)	0	1	-2	3	-4	5
g'(x)	2	-3	5	-8	10	-15

1. Suppose  $f(x) = x^3 \cos(x)$ . Find f'(x).

2. Suppose  $y = \frac{e^x + x}{\sin(x)}$ . Find  $\frac{dy}{dx}$ .

3. Suppose  $y = \frac{1+x^2}{xe^x}$ . Find y'.

4. Information about two functions f and g and their derivatives is given in the table below. Suppose  $h(x) = f(x) + x^2 g(x)$ . Find h'(3).

x	1	2	3	4	5	6
f(x)	-3	-2	1	5	6	3
f'(x)	5	3	2	1	0	-2
$ \begin{array}{c c} f(x) \\ f'(x) \\ g(x) \end{array} $	0	1	-2	3	-4	5
g'(x)	2	-3	5	-8	10	-15