1. Find the following derivatives for the function $f(x) = (x^2 - 2x)^3$.

   (a) $f'(x)$

   (b) $f''(x)$

   (c) $f'(0)$

   (d) $f''(0)$

2. Find the following derivatives for the function $f(x) = 3\sin(x)$

   (a) $f'(x)$

   (b) $f''(x)$

   (c) $f^{(11)}(x)$

   (d) $f^{(20)}(x)$

3. Find the derivatives of the following functions.

   (a) $f(x) = \sqrt{\cos(2x) + \sin(2x)}$

   (b) $G(x) = \left(\frac{3x-1}{2x^2-1}\right)^3$

   (c) $y = x^{-3}\sec(x)$

4. For two functions f, g we have the following values. Find the derivatives

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
-3	1	2	7	0
2	5	2	-6	-1
5	$\frac{1}{2}$	7	-3	4

(a) $(f \circ g)'(x)$

(b) $(fg)'(x)$

(c) $\left(\frac{f}{g}\right)'(x)$

5. Find the equation of the tangent line to the curve $y = (1 + x^2)\sin(2x)$ at the point $(0, 1)$

6. Find the following limit.

$$\lim_{x \to 3} \frac{\sin(x-3)}{x^2 - 4x + 3}$$

7. Find $\frac{dy}{dx}$ for the curve $y^2 + (x-2)^2 = 20$ at the point $(4, -4)$