Topic 9: Trigonometric functions

Find the derivative of each function.

1. $f(x) = 4\sin x - x$

2. $f(x) = \tan x - \csc x$

3. $f(x) = x\cos x$

4. $f(x) = 4\sqrt{x} - 2\sin x$

5. $f(x) = \sin x \sec x$

6. $f(x) = \dfrac{\cos x - 1}{x^2}$

7. $f(x) = 2\sin x \cos x$

8. $f(x) = 4x^2 \tan x$

9. $f(x) = 4\sin^2 x + 4\cos^2 x$

Answers

1) $f'(x) = 4\cos x - 1$

2) $f'(x) = \sec^2 x + \csc x \cot x$

3) $f'(x) = \cos x - x\sin x$

4) $f'(x) = 2x^{-1/2} - 2\cos x$

5) $f'(x) = \sec^2 x$

6) $f'(x) = \dfrac{-x^2 \sin x - (\cos x - 1)(2x)}{x^4}$

7) $f'(x) = 2\cos^2 x - 2\sin^2 x$

8) $f'(x) = 8x\tan x + 4x^2 \sec^2 x$

9) $f'(x) = 0$