# CALCULUS – Derivatives Test

For all problems, find f'(x).

1. $f(x) = 3x^3 + 4x^2 - 6x + 12$

2. $f(x) = \dfrac{5x^4 + 11x^3 + 9x^2 - x + 15}{x}$

3. $f(x) = (2x + 5)(3x - 1)$

4. $f(x) = (4x + 3)^3$

5. $f(x) = \dfrac{3x-2}{7x+1}$

6. $f(x) = \left(\dfrac{3x-2}{7x+1}\right)^2$

7. $f(x) = \sqrt{2x+1}$

8. $f(x) = \left(\dfrac{x}{7x+1}\right)^3$

9. $f(x) = \dfrac{1}{(3x+4)^2}$

10. $f(x) = \sin(x^2 + 3x)$

11. $f(x) = \sin(x)\cos(4x)$

12. $f(x) = \tan(x)$
Hint: Rewrite tangent using a trigonometric identity.