PRODUCT RULE WORKSHEET

Use the product rule to find the derivative of each of the following functions.

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

3. $f(x) = x \sin x + 1$ 4. $f(x) = 3x^4 \cos x$

5. $f(x) = (\sqrt{x} + 1)(\sin x - 3x)$ 6. $f(x) = (\sin x)\sqrt[3]{x^2}$

7. $f(x) = 3x \cos x + \sin x \cos x$ 8. $f(x) = \dfrac{\sin x}{x^3}$

9. $f(x) = x^3(2\sin x + x^2 - 1)$ 10. $f(x) = 3x \sin x \cos x$

11. $f(x) = 3\cos x$ 12. $f(x) = 5\sin x$

13. $f(x) = (x^3 + 2x)\sqrt{x}$ 14. $f(x) = (x^3 + 2x + 1)\cos x$

15. $f(x) = x \sin x - x \cos x$ 16. $f(x) = \sqrt[3]{x} \sin x$