**Name:** _____

Find the derivatives of the following functions, using the product and quotient rules as appropriate.

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

2. $f(x) = \dfrac{\sqrt{x} + 5}{x^2 + x}$

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

**Name:** _____

Find the derivatives of the following functions, using the product and quotient rules as appropriate.

1. $f(x) = \dfrac{x^5}{\sin(x)}$

2. $f(x) = 4^x(x^2 + x + 1)$

3. $f(x) = \dfrac{\sqrt{x}}{3^x \cdot \cos(x)}$

**Name:** _____

Find the derivatives of the following functions, using the product and quotient rules as appropriate.

1. $f(x) = e^x \cos(x)$

2. $f(x) = \dfrac{\cos(x)}{4x^2 - 7}$

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

**Name:** _____

Find the derivatives of the following functions, using the product and quotient rules as appropriate.

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

2. $f(x) = x^{-4}\cos(x)$

3. $f(x) = \dfrac{\sin(x)(\cos(x) + 1)}{\cos(x)}$