

### Skill Builder: Topic 3.6 – Higher-Order Derivatives

Find the indicated derivative of each function.

<p>1.) Find <math>y''</math> if <math>y = 4x^6 + 3x^5 - 8x^3 + 6x^2 + 15</math></p>	<p>2.) What is <math>\frac{d^2y}{dx^2}</math> when <math>y = \cos(2x^3)</math></p>
<p>3.) Find <math>y^{(4)}</math> if <math>y = 3x^3 + 2x^2 - x + 9</math></p>	<p>4.) The second derivative of <math>f(x) = \ln x</math> at <math>x = 3</math> is what value?</p>
<p>5.) If <math>f(x) = \sqrt{x-16}</math>, what is <math>f''(x)</math>?</p>	<p>6.) A function <math>g</math> is defined by <math>g(x) = 3e^{3x}</math>, what is <math>g''(2)</math>?</p>
<p>7.) If <math>f(x) = (2+3x)^4</math>, find the fourth derivative of <math>f</math>.</p>	<p>8.) What is the 20<sup>th</sup> derivative of <math>y = \sin(2x)</math>?</p>
<p>9.) If <math>y = xe^x</math>, then find <math>\frac{d^n y}{dx^n}</math>.</p>	<p>10.) Find <math>h''(x)</math> if <math>h(x) = f(x^3)</math>.</p>