# Derivatives of Basic Functions Worksheet

1. Find $f'(x)$ for $f(x) = 2x^3 - (-2x) + \pi$.

2. Find $\frac{dg}{dy}$ for $g(y) = 2\sin(y) + \tan(\pi) + 3y^2$.

3. Find $\frac{dw}{dz}$ for $w(z) = \pi^z - z^{\pi}$.

4. Find $\frac{dh(u)}{du}$ for $h(u) = \ln(u^2)$.

5. Find $\lim_{h \to 0} \frac{f(a+h) - f(a)}{h}$ for $f(x) = \frac{2}{x^2} - 4x^2$.

6. Find $\frac{d}{dz}\left(\sin(\pi)\sin(z) + \ln(5y)\right)$.

7. Find $l'(x)$ is $l(x) = \sqrt{x}\left(x^2 + \frac{1}{x}\right)$.

8. Find $\frac{d}{du}\left(4x^{100} - 6x^7 + 9x + \ln(2)\right)$.

9. Find $\left[x^2 + e^x + |x|\right]'$.

10. Find $u'(x)$ if $u(x) = \frac{x^3 - x\cos(x)}{x}$.

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