

Directions: Beginning in the first cell marked #1, find the requested information. To advance in the circuit, hunt for your answer and mark that cell #2. Continue working in this manner until you complete the circuit.

<p>Ans: $\cos x$ # <u>1</u> Find $f''(x)$. $f(x) = x^3 + x^2 + 4$</p> <p style="text-align: center;">$f''(x) = ?$</p>	<p>Ans: $-\frac{x - \sin x}{y}$ # _____ Find $\frac{dy}{dx}$. $y = 3(2x + \frac{2}{3})$</p> <p style="text-align: center;">$\frac{dy}{dx} = ?$</p>
<p>Ans: -4 # _____ Find $\frac{dy}{dx}$. $y = 5x + \cos x$</p> <p style="text-align: center;">$\frac{dy}{dx} = ?$</p>	<p>Ans: $\frac{-2}{x^3}$ # _____ Find $\frac{dy}{dx}$. $y = x \sin x$</p> <p style="text-align: center;">$\frac{dy}{dx} = ?$</p>
<p>Ans: $6x + 2$ # _____ Find $f'(x)$. $f(x) = \frac{1}{x^2}$</p> <p style="text-align: center;">$f'(x) = ?$</p>	<p>Ans: $5 - \sin x$ # _____ Find $f'(x)$. $f(x) = x^2 + 4x - 5$</p> <p style="text-align: center;">$f'(x) = ?$</p>
<p>Ans: $2x + 4$ # _____ Find $\frac{dy}{dx}$. $y = x \tan x$</p> <p style="text-align: center;">$\frac{dy}{dx} = ?$</p>	<p>Ans: $\frac{3 - 2xy}{x^2 + 1}$ # _____ $f(x) = \tan x \cos x$</p> <p style="text-align: center;">$f'(x) = ?$</p>

Circuit Training – Functions: Piecewise, Abs. Value & Operations

<p>Ans: 3</p> <p># _____</p> <p>A student is finding the derivative by the limit process. The student is using</p> $f'(x) = \lim_{h \rightarrow 0} \frac{(x+h)^2 + 3(x+h) - 4 - x^2 - 3x + 4}{h}$ <p>If the original function is $f(x) = ax^2 + bx + c$, what is the value of c?</p>	<p>Ans: 6</p> <p># _____</p> <p>Find $\frac{dy}{dx}$. $y = \frac{2x^2 + 4x}{x}$</p> <p>$\frac{dy}{dx} = ?$</p>
<p>Ans: $\tan x + x \sec^2 x$</p> <p># _____</p> <p>Find $\frac{dy}{dx}$. $x^2y + y = 3x$</p> <p>$\frac{dy}{dx} = ?$</p>	<p>Ans: $\sin x + x \cos x$</p> <p># _____</p> <p>Find $\frac{dy}{dx}$. $xy = \cos x$</p> <p>$\frac{dy}{dx} = ?$</p>
<p>Ans: $-\frac{y + \sin x}{x}$</p> <p># _____</p> <p>Find $\frac{dy}{dx}$. $x^2 + y^2 + 2 \cos x = 32$</p> <p>$\frac{dy}{dx} = ?$</p>	<p>Ans: 2</p> <p># _____</p> <p>A student is finding the derivative of $f(x) = x^3$ by the limit process. The student is using $f'(x) = \lim_{h \rightarrow 0} \frac{(x+h)^3 - x^3}{h}$.</p> <p>The student simplifies this expression to</p> $f'(x) = \lim_{h \rightarrow 0} (Ax^B + Cx^D h^E + h^F)$ <p>A, B, C, D, E & F are integers. What is the value of C?</p>