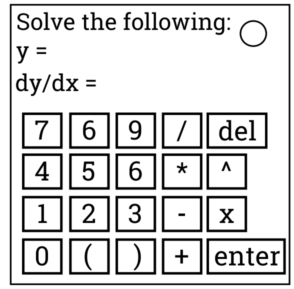
On the Subject of Derivatives



Do you remember high school maths? Time to find out.

This module requires an internet connection to work.*

Solve the module by solving all differential equations, normal mathematical rules apply.

You will need to solve the equations an amount of times equal to the bomb's starting time (in minutes) divided by 3, rounded up (max 10).

Entering the incorrect answer for an equation will cause a strike, but will still count as solving the equation.

Assume x is positive.

Writing rules

- Fractions must be in the form *(-)*x/y where x may be a bigger number than y:
  - Correct: **-4/3**
  - Incorrect: **1(1/-3)**
- Bracket multiplication e.g. **(4)(5)** is **NOT** allowed.
- If an exponent is negative it must be written as a fraction:
  - Correct: **2/x^2**
  - Incorrect: **2x^(-2)**

  Exception: If an expression results in an **x** multiplied by a fraction e.g. 3/2 the fraction must be entered last and the exponent may be negative:
  - Correct: **x^(-7/2) * 3/2**
  - Incorrect: **3/2 * x^(-7/2)**
- Answers must be simplified:
  - Correct: **-32/x^5**
  - Incorrect: **-12/x^5 - 20/x^5**

  Exception: When applying the product rule on a negative fraction of the exponent of **x** the product rule must **NOT** be simplified:
  - e.g. for **y = x^(-1/2) * x^3**
  - Correct: **x^(3/2) * (-1/2) + 3 * x^(3/2)**
  - Incorrect: **(5/2) * x^(3/2)**

See Appendix A for basic differentiation rules.

*On failure to connect the screen will read **error.** Pressing a button will solve the module.

Appendix A: Differentiation rules

$\frac{d}{dx}(c) = 0$	where c is a constant
$\frac{d}{dx}(x^n) = nx^{n-1}$	where n is any real number
$\frac{d}{dx}(\ln x) = \frac{1}{x}$	where $x > 0$
$\frac{d}{dx}(e^x) = e^x$	
$\frac{d}{dx}(\sin x) = \cos x$	
$\frac{d}{dx}[f(x) + g(x)] = f'(x) + g'(x)$	
$\frac{d}{dx}[f(x) - g(x)] = f'(x) - g'(x)$	
$\frac{d}{dx}[f(x)g(x)] = f(x)g'(x) + g(x)f'(x)$	
$\frac{d}{dx}f(g(x)) = f'(g(x))g'(x)$	