The general solution of the differential equation $y' + y = -1$ is

Select one:

- ○ $y(t) = 1 + ce^{-t}$
- ◉ $y(t) = -1 + ce^{-t}$
- ○ $y(t) = -1 + ce^{t}$
- ○ $y(t) = ce^{-t}$

Clear my choice

The differential equation $y' + \dfrac{t}{y} = 1$ is

Select one:

- ○ second order linear equation.

- ○ second order nonlinear equation.

- ○ first order linear equation

- ● first order nonlinear equation

Clear my choice

Let $v(t)$ be the velocity of a falling object that satisfies $15\frac{dv}{dt} = 147 - \gamma v$. If the limiting velocity is $v_L = 21$ then $\gamma =$

Select one:

- ● 7 kg/s

- ○ 3 kg/s

- ○ 5 kg/s

- ○ 2 kg/s

Clear my choice

If all solutions of the differential equation $y' = ay - b$ converge to -3 then possible values for a and b are

Select one:

- $a = 1, b = 3$

- $a = -1, b = -3$

- ● $a = -1, b = 3$

- $a = 1, b = -3$

<u>Clear my choice</u>

Let $y(t)$ be a solution of the differential equation $y' + y = -2$, then

Select one:

○ $\lim_{t \to \infty} y(t) = 2$

● $\lim_{t \to \infty} y(t) = -2$

○ $\lim_{t \to \infty} y(t) = -\infty$

○ $\lim_{t \to \infty} y(t) = +\infty$

<u>Clear my choice</u>