

math16506.mw

Maple 9.5 Worksheet for Problems in Math 165 - Calculus for Business.

Problem 68 p. 325 Section 4.3

First load plots and student:

```
> restart: with( student):with (plots):
```

Warning, the name changecoords has been redefined

```
> C:= proc(t) description `Percentage of alcohol in blood after t hours`;  
0.12*t*exp(-t/2);  
end proc;C(t);
```

```
C := proc(t) description `Percentage of alcohol in blood after t hours`; 0.12*t*exp(- 1/2*t) end proc;
```

$$0.12 t e^{\left(-\frac{1}{2} t\right)}$$

```
> C_prime:= proc(t)  
diff(C(t),t);  
end proc;  
C_prime(t);
```

```
C_prime := proc(t) diff(C(t),t) end proc;
```

$$0.12 e^{\left(-\frac{1}{2} t\right)} - 0.06000000000 t e^{\left(-\frac{1}{2} t\right)}$$

```
> solve(C_prime(t) = 0, t);
```

2.

```
> solve(C(t) = .04, t);
```

0.4089628987, 5.666295784

```
> solution_seq:=solve(C(t) = .04, t);
```

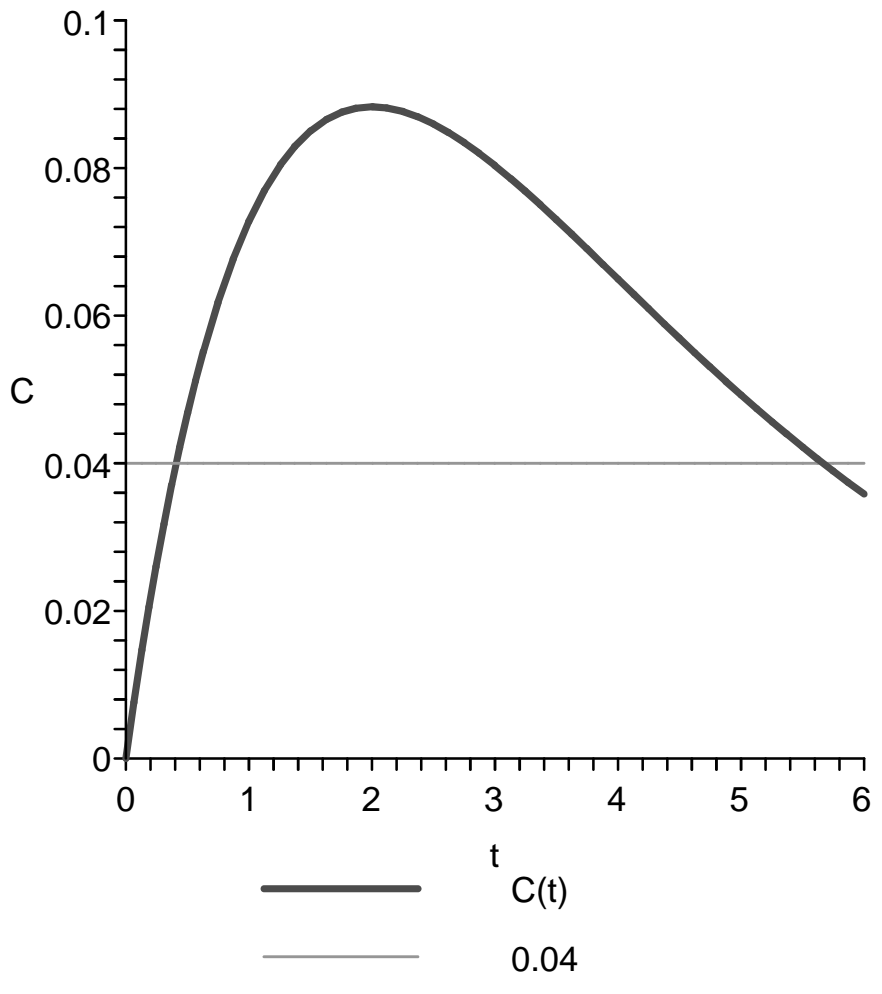
```
solution_seq := 0.4089628987, 5.666295784
```

```
> eval(C_prime(t), t=solution_seq[2]);
```

-0.01294071444

```
>
```

```
> plot([C(t),0.04], t = 0..6,C = 0..0.10,thickness = [2,1],legend=[`C(t)`,  
`0.04`],tickmarks=[7,6]);
```



]