7. If $\frac{dd}{dz}=3\,e^{d+z}$,

$d(\log(6))=2$

and $d=2$ when $z=\text{Log}[6]$.

$d(\log(3))=?$

Find d when $z=\text{Log}[3]$

- 1.21215
- 3.21215
- 2.21215
- 4.4243

Solution

$d'=3\,e^{d+z}$

Separate the function in the right hand side to two variables one of them (M) is respect to z and the other (N) respect to d :

Now, separate as this: $\frac{M=3\,e^{z}}{N=e^{d}}$

$(1/N(d))\,dd=M(z)\,dz$

which is:

$e^{-d}dd=3\,e^{z}dz$

integrate the both sides:

$\int(1/N(d))\,dd=\int M(z)\,dz$

to get:

$\int e^{-d}dd=\int 3\,e^{z}dz$

Now, solving this equation to get the answer

$-e^{-d}=\text{const}+3\,e^{z}$

$\text{ConditionalExpression}\left[\log\left(-\frac{e^{2}}{3\,e^{z+2}-1-18\,e^{2}}\right),\ e^{z}<\frac{1+18\,e^{2}}{3\,e^{2}}\right]$

$2-\log\left(1+9\,e^{2}\right)$