

mobius

Exponential Function Solving - Growth (Continuous, Mis-matched Time Units)

2



Solve for the rate given this model of a continuously compounding growth of app downloads?

$$994 = 900 \cdot e^{(r \cdot \frac{2}{7})}$$

Solve for the rate given this model of a growth of debt on a credit card with continuous compounding?

$$375 = 200 \cdot e^{(r \cdot \frac{7}{3})}$$

$$r=+rac{e^{rac{A}{A_0}}}{rac{t}{7}}\left|egin{smallmatrix} {}^{ extsf{B}}=+rac{ extsf{ln}\,rac{A}{A_0}}{rac{t}{7}}
ight|^{ extsf{c}}=+rac{ extsf{ln}\,rac{A_0}{A}}{t\cdot 7}
ight|^{ extsf{c}}$$

$$r=+rac{e^{rac{A}{A_0}}}{rac{t}{7}}\left|egin{matrix} ^{ ext{B}}=+rac{ ext{ln}\,rac{A}{A_0}}{rac{t}{7}}
ight|^{ ext{C}}=+rac{ ext{ln}\,rac{A_0}{A}}{t\cdot7}
ight|^{ ext{A}}=+rac{ ext{ln}\,rac{D}{D_0}}{rac{t}{3}}\left|egin{matrix} ^{ ext{B}}=+rac{e^{rac{D}{D_0}}}{rac{t}{3}}
ight|^{ ext{C}}=+rac{ ext{ln}\,rac{D_0}{D}}{t\cdot3}
ight|^{ ext{C}}$$

3 Solve for the rate given this model of a continuously compounding growth of app downloads?

Solve for the rate given this model of a growth of debt on a credit card with continuous compounding?

1, 045 = 900
$$\cdot e^{(r \cdot 5 \cdot 7)}$$

$$851 = 600 \cdot e^{(r \cdot \frac{5}{12})}$$

$$egin{aligned} oldsymbol{r} = +rac{e^{rac{A}{A_0}}}{t\cdot 7}oldsymbol{r} = +rac{\mathsf{ln}\,rac{A_0}{A_0}}{t\cdot 7}oldsymbol{r} = +rac{\mathsf{ln}\,rac{A_0}{A}}{rac{t}{7}} \end{aligned}$$

$$r = +rac{e^{rac{A}{A_0}}}{t\cdot 7}igg|^{\mathrm{B}} r = +rac{\mathsf{ln}\,rac{A}{A_0}}{t\cdot 7}igg|^{\mathrm{C}} r = +rac{\mathsf{ln}\,rac{A_0}{A}}{rac{t}{7}}igg|^{\mathrm{A}} r = +rac{\mathsf{ln}\,rac{D}{D_0}}{rac{t}{12}}igg|^{\mathrm{B}} r = +rac{\mathsf{ln}\,rac{D_0}{D}}{t\cdot 12}igg|^{\mathrm{C}} r = +rac{e^{rac{D}{D_0}}}{rac{t}{12}}$$

5 Solve for the rate given this model of a continuous exponential growth of social media post views?

Solve for the rate given this model of a continuously compounding growth of app downloads?

1, 239 = 900
$$\cdot e^{(r \cdot \frac{8}{365})}$$
 464 = 400 $\cdot e^{(r \cdot \frac{3}{365})}$

$$464 = 400 \cdot e^{(r \cdot \frac{3}{365})}$$

$$\left| egin{array}{c} \mathbf{r} = +rac{\mathsf{ln}\,rac{V}{V_0}}{rac{t}{365}}
ight|^{\mathsf{B}} r = +rac{e^{rac{V}{V_0}}}{rac{t}{365}}
ight|^{\mathsf{C}} r = +rac{\mathsf{ln}\,rac{V_0}{V}}{t\cdot 365}
ight|^{\mathsf{C}}$$

$$egin{aligned} r = +rac{\mathsf{ln}\,rac{V}{V_0}}{rac{t}{365}} egin{aligned} r = +rac{e^{rac{V}{V_0}}}{rac{t}{365}} \end{array} egin{aligned} r = +rac{\mathsf{ln}\,rac{V_0}{V}}{r} \end{array} egin{aligned} r = +rac{\mathsf{ln}\,rac{A_0}{A}}{t\cdot 365} \end{array} egin{aligned} r = +rac{\mathsf{ln}\,rac{A}{A_0}}{rac{t}{365}} \end{array} egin{aligned} r = +rac{\mathsf{ln}\,rac{A}{A_0}}{2} \end{array} egin{aligned} r = +rac{\mathsf{ln}\,rac{A}{A_0} + r^2}{2} \end{array} egin{aligned} r = +rac{\mathsf{ln}\,rac{A}{A_0} + r^2}{2} \end{array} egin{aligned} r = +rac{\mathsf{ln}\,rac{A}{A_0} + r^2}{2} + rac{\mathsf{ln}\,r^2}{2} + r^2} + rac{\mathsf{ln}\,r^2}{2} + r^2 + r$$

7 Solve for the rate given this model of a continuously compounding growth of money in a savings account? Solve for the rate given this model of a growth of debt on a credit card with continuous compounding?

$$821 = 400 \cdot e^{(r \cdot \frac{8}{4})}$$

$$955 = 900 \cdot e^{(r \cdot 3 \cdot 4)}$$

$$egin{aligned} \overset{ ext{A}}{r} = +rac{ ext{In}\,rac{P_0}{P}}{t\cdot ext{4}} egin{aligned} & r = +rac{e^{rac{P}{P_0}}}{rac{t}{4}} & r = +rac{ ext{In}\,rac{P}{P_0}}{rac{t}{4}} & r = +rac{ ext{In}\,rac{D}{D_0}}{t\cdot ext{4}} & r = +rac{e^{rac{D}{D_0}}}{t\cdot ext{4}} & r = +rac{e^{rac{D}{D_0}}}{t\cdot ext{4}} & r = +rac{ ext{In}\,rac{D_0}{D}}{rac{t}{4}} & r = +rac{ ext{In}\,rac{D_0}{D_0}}{t\cdot ext{4}} & r = +rac{ ext{In}\,ra$$