

2021 Calculus AB and BC Must Know Integration Technique Integrating By Separating The

Lesson 330 | Calculus BC | Separable differential equations and slope fields

<https://www.youtube.com/watch?v=Ay1ngvs9r-c>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Solve $dy/dx=4y$ with $y(0)=2$. Give the initial slope and explain the sign of the solution.

02

Solve $dy/dx=4y$ with $y(0)=10$. Give the initial slope and explain the sign of the solution.

03

Solve $dy/dx=6y$ with $y(0)=5$. Give the initial slope and explain the sign of the solution.

2021 Calculus AB and BC Must Know Integration Technique Integrating By Separating The

Lesson 330 | Calculus BC | Separable differential equations and slope fields

<https://www.youtube.com/watch?v=Ay1ngvs9r-c>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

04

Solve $dy/dx=14y$ with $y(0)=7$. Give the initial slope and explain the sign of the solution.

05

Solve $dy/dx=13y$ with $y(0)=7$. Give the initial slope and explain the sign of the solution.

06

Solve $dy/dx=14y$ with $y(0)=12$. Give the initial slope and explain the sign of the solution.

2021 Calculus AB and BC Must Know Integration Technique Integrating By Separating The

Lesson 330 | Calculus BC | Separable differential equations and slope fields

<https://www.youtube.com/watch?v=Ay1ngvs9r-c>

Original practice aligned to the saved video title.

01

Solve $dy/dx=4y$ with $y(0)=2$. Give the initial slope and explain the sign of the solution.

Separate $dy/y=4dx$. Integrate $\ln|y|=4x+C$; use initial condition: $y=2e^{(4x)}$. Initial slope=8. Exponential and 2 are positive, so $y>0$ for all x .

02

Solve $dy/dx=4y$ with $y(0)=10$. Give the initial slope and explain the sign of the solution.

Separate $dy/y=4dx$. Integrate $\ln|y|=4x+C$; use initial condition: $y=10e^{(4x)}$. Initial slope=40. Exponential and 10 are positive, so $y>0$ for all x .

03

Solve $dy/dx=6y$ with $y(0)=5$. Give the initial slope and explain the sign of the solution.

Separate $dy/y=6dx$. Integrate $\ln|y|=6x+C$; use initial condition: $y=5e^{(6x)}$. Initial slope=30. Exponential and 5 are positive, so $y>0$ for all x .

2021 Calculus AB and BC Must Know Integration Technique Integrating By Separating The

Lesson 330 | Calculus BC | Separable differential equations and slope fields

<https://www.youtube.com/watch?v=Ay1ngvs9r-c>

Original practice aligned to the saved video title.

04

Solve $dy/dx=14y$ with $y(0)=7$. Give the initial slope and explain the sign of the solution.

Separate $dy/y=14dx$. Integrate $\ln|y|=14x+C$; use initial condition: $y=7e^{(14x)}$. Initial slope=98. Exponential and 7 are positive, so $y>0$ for all x .

05

Solve $dy/dx=13y$ with $y(0)=7$. Give the initial slope and explain the sign of the solution.

Separate $dy/y=13dx$. Integrate $\ln|y|=13x+C$; use initial condition: $y=7e^{(13x)}$. Initial slope=91. Exponential and 7 are positive, so $y>0$ for all x .

06

Solve $dy/dx=14y$ with $y(0)=12$. Give the initial slope and explain the sign of the solution.

Separate $dy/y=14dx$. Integrate $\ln|y|=14x+C$; use initial condition: $y=12e^{(14x)}$. Initial slope=168. Exponential and 12 are positive, so $y>0$ for all x .