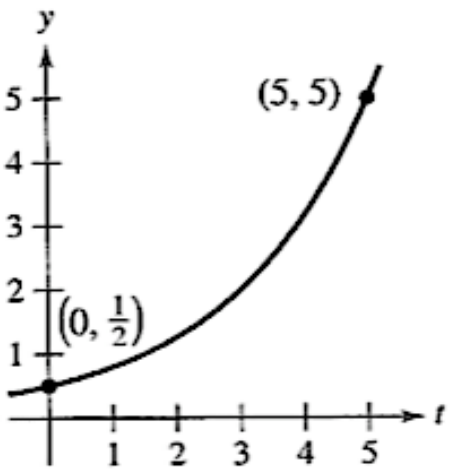
Lesson 564 Differential Equations Separation of variables – initial condition

In Exercises 55–64, find the particular solution that satisfies the initial condition.

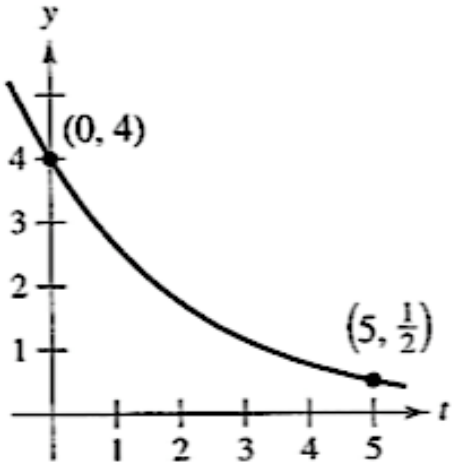
	Differential Equation	*Initial Condition*
55.	$yy' - e^x = 0$	$y(0) = 4$
56.	$\sqrt{x} + \sqrt{y}y' = 0$	$y(1) = 4$
57.	$y(x + 1) + y' = 0$	$y(-2) = 1$
58.	$2xy' - \ln x^2 = 0$	$y(1) = 2$
59.	$y(1 + x^2)y' - x(1 + y^2) = 0$	$y(0) = \sqrt{3}$
60.	$y\sqrt{1 - x^2}\,y' - x\sqrt{1 - y^2} = 0$	$y(0) = 1$
61.	$\frac{du}{dv} = uv \sin v^2$	$u(0) = 1$
62.	$\frac{dr}{ds} = e^{r-2s}$	$r(0) = 0$
63.	$dP - kP\,dt = 0$	$P(0) = P_0$
64.	$dT + k(T - 70)\,dt = 0$	$T(0) = 140$

In Exercises 25–28, find the exponential function $y = Ce^{kt}$ that passes through the two given points.

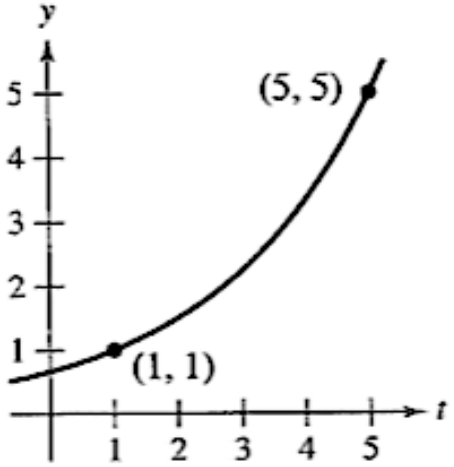
25.



26.



27.



28.