$\frac{dx}{dt} = -x$, $x(0) = r$; $\frac{dy}{dt} = r$, $y(0) = 0$

$\int \frac{dx}{x} = -\int dt$

$\ln|x| = -t + C$

$|x| = e^{-t+C} = e^{-t} \cdot e^{C}$

$x = \pm e^{C} e^{-t}$

$\int dy = r\int dt$

$y = rt + C$

$y(0) = 0 = r(0) + C$

$0 = C$

$y = rt$

$x = Ae^{-t}$ $x(0) = r = Ae^{-(0)}$

$A = r$ $x = re^{-t}$

$\frac{x}{r} = e^{-t}$

$e^{t} = \frac{r}{x}$ $t = \ln\left(\frac{r}{x}\right)$

$y = rt$

$y(x) = r\ln\left(\frac{r}{x}\right)$

7. Complete the solution of the problem from *On Triangles* discussed in the text of finding two sides AB, AG, of triangle ABG given that $BG = 20$, the perpendicular $AD = 5$, and the ratio $AB : AG = 3 : 5$ (see Fig. 13.13).