

what interest rate compounded daily
is required for 40,000 investment

to grow to 65,000 in 8 years?

$$65000 = 40000 \left(1 + \frac{r}{365}\right)^{365(8)}$$

$$r = 0.06 \times 100$$

$$= 6\%$$

calculator, numerical solve

54. $\ln(3x+4) - \ln(2x+1) = 5$

$$\ln \left(\frac{3x+4}{2x+1} \right) = 5$$

$$\frac{3x+4}{2x+1} = \frac{e^5}{1}$$

$$\underbrace{3x+4}_{-2e^5x \quad -4} = \underbrace{2e^5x}_{-2e^5x} + \underbrace{e^5}_{-4}$$

$$3x - 2e^5x = e^5 - 4$$

$$\frac{x(3 - 2e^5)}{3 - 2e^5} = \frac{e^5 - 4}{3 - 2e^5}$$

$$x = \frac{e^5 - 4}{3 - 2e^5} \approx -0.49$$