I want $3000 after 5 years in my savings account. If it is compounded quarterly at a rate of 2.5%, how much do I need to put in?

$$A = P\left(1+\frac{r}{n}\right)^{nt}$$

$$3000 = P\left(1+\frac{.025}{4}\right)^{4(5)}$$

$$P = 2648.52$$

Chapter 7.3: Use Functions Involving e.

$$\lim_{x\to\infty}\left(1+\frac{1}{x}\right)^{x} = e$$

natural base or the Euler Number

$$e^{1} \approx 2.718281828$$

Treated with powers of exponents

Simplify the expression.

$e^2 \bullet e^5$

e^7

$\frac{12e^4}{3e^3}$

$4e$

$(5e^{-3x})^2$

$5^2 e^{-6x}$

$\boxed{\frac{25}{e^{6x}}}$

Use a calculator:

e^4

54.5981

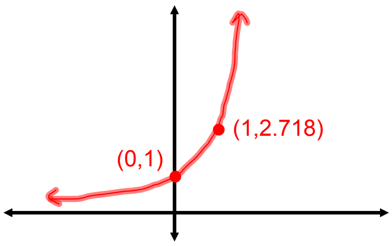
$e^{-0.09}$

$\frac{1}{e^{.09}}$

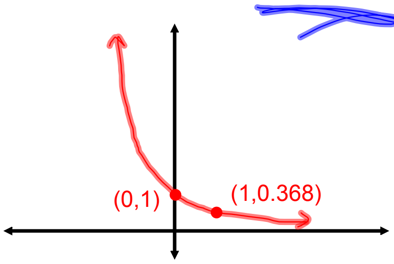
.9139

Natural Base Functions: $y = ae^{rx}$

Exponential Growth: a>0, r>0

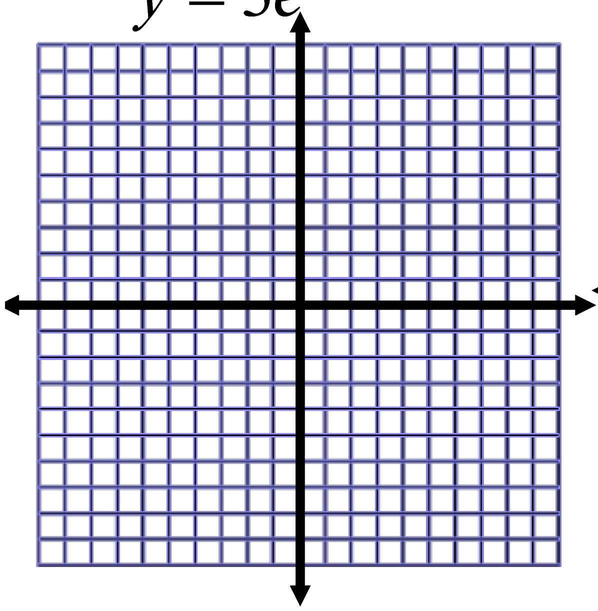


Exponential Decay: a>0, r<0

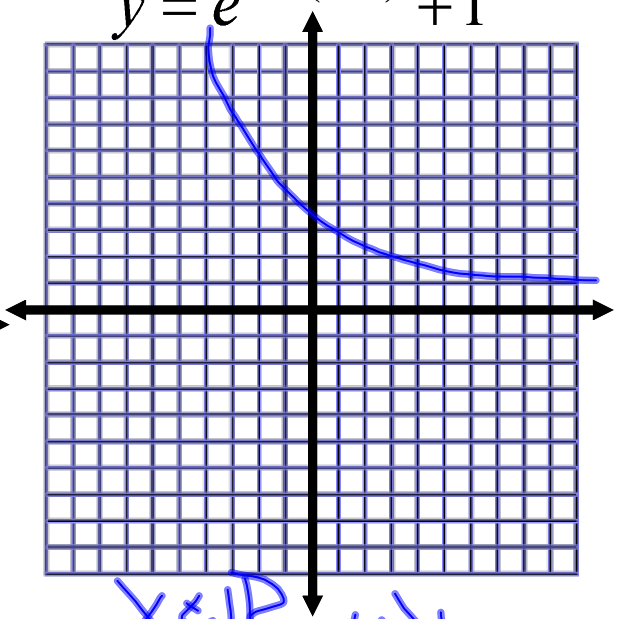


Graph, give domain/range:

$y = 3e^{0.25x}$



$y = e^{-.75(x-2)} + 1$



$x \in \mathbb{R}$ $y > 1$

The length l(cm) of a tiger shark can be modeled by the function

$$l = 337 - 276e^{-0.178t}$$

where t is the shark's age(yrs)

- graph the model
- how longh is the tiger shark at 3 years?

Continuously Compounded Interest:

$$A = Pe^{rt}$$

$$A = P\left(1+\frac{r}{n}\right)^{nt}$$

A = amount

P = Principle

r = rate/yr

t = time(yrs)

You deposit \$4000 in an account that pays 6% annual interest compounded continuously. What is the balance after 1 year?

$A = Pe^{rt}$

$A = 4000e^{(.06 \cdot 1)}$

$A = \$4247.34$

Homework: Chapter 7.3
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