

4.1: Exponential Functions4.1
1/2ex1: Folding paper to the moon.Defn. The exp fct w/ base b is defined as $f(x) = b^x$, $a > 0$ & $a \neq 1$

vocab: base

ex2: Graph $f(x) = 2^x$ & $g(x) = (\frac{1}{2})^x$ Note! $g(x) = (\frac{1}{2})^x = \frac{1}{2^x} = 2^{-x} = f(-x)$ (reflection)ex3: $P(t) = \frac{1200}{1 + 11(0.82)^t}$ gives the pop of fish in a pond t yrs after it was stocked.

- how many fish @ stocking
- find the pop @ $t=10, 20, 30$
- what happens to P as $t \rightarrow \infty$

compound interest formula

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

w/ parameters A, P, r, n, t

4.7
2/2

ex4: Do a compound interest problem

Euler's problem: $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = e$

~~e~~ $e \approx 2.7172 \dots$ irrational

cont. compound interest

$A(t) = P e^{nt}$ w/parameters A, P, n, t

ex5: cont. int. problem.

Defn: The natural exp fct $f(x) = e^x$
w/ base e is the exp fct.