Review of Compound Interest

$A = P(1+r)^t$ ← time (periods)

- A: accrued value (final)
- P: principal value (initial)
- r: rate of interest (100%)

Ex 3: $2500(1.032)^6 = A \rightarrow \$3020.08 = A$

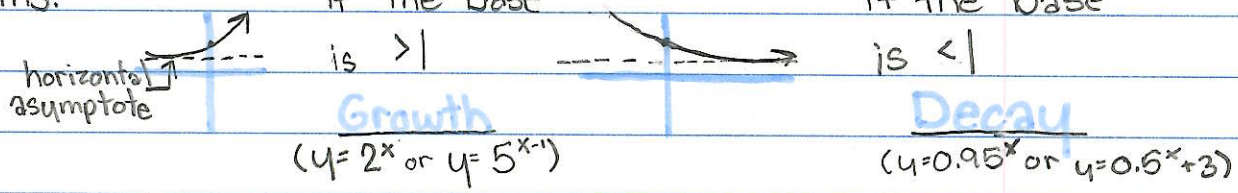
Ex 8: $\frac{4850}{(1.045)^6} = \frac{P(1.045)^6}{(1.045)^6} \rightarrow A = \$3724.29$

Ex 12: $\frac{8000}{5000} = \frac{5000(1.05)^t}{5000} \rightarrow 1.6 = 1.05^t$ $\quad t = 9.6$ years

$\rightarrow (1.6) = \log_{1.05}(1.05)^t$

Graphing (Sketching) Exponential Functions

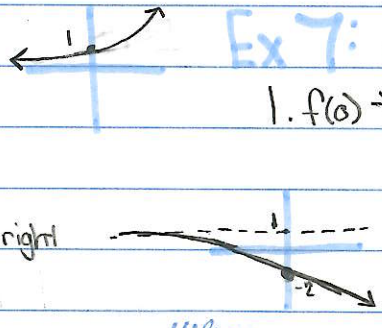
- An exponential function might look like one of these forms:



1. find the y-intercept, $f(0)$ or $x = 0$
2. find the limit when $x \rightarrow \infty$ (what happens on the right side)
3. find the limit when $x \rightarrow -\infty$ (what happens on the left side)

Ex 1: $y = 2^x$

1. $y = 2^0$
2. $y = 2^\infty$
   $y = \infty$ on right
3. $y = 2^{-\infty}$
   $y = 0$ on left



Ex 7: $y = -3(2)^x + 1$

1. $f(0) \rightarrow y = -3(2)^0 + 1$
   $y = -3(1) + 1$
   $y = -2$
2. $f(\infty) \rightarrow y = -3(2)^\infty + 1$
   $y = -\infty + 1$
   $y = -\infty$ on right
3. $f(-\infty) \rightarrow y = -3(2)^{-\infty} + 1$
   $y = -3 \cdot 0 + 1$
   $y = 1$

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Ex 16: $y = -(0.5)^{x+2}$

1. $\to f(0)$ $y = -(0.5)^{0+2}$

$y = -(0.5)^2$

$y = -0.25$

2. $\to f(\infty)$ $y = -(0.5)^{\infty+2}$

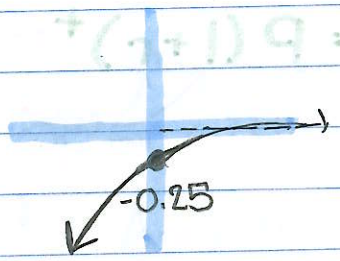
$y = -(0.5)^{\infty}$

$y = 0$

3. $\to f(-\infty)$ $y = -(0.5)^{-\infty+2}$

$y = -(0.5)^{-\infty}$

$y = \infty$



Growth:

base > 1

$2^{\infty} = \infty$ $2^{-\infty} = 0$

Decay:

base < 1

$0.x^{\infty} = 0$ $0.x^{-\infty} = \infty$

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