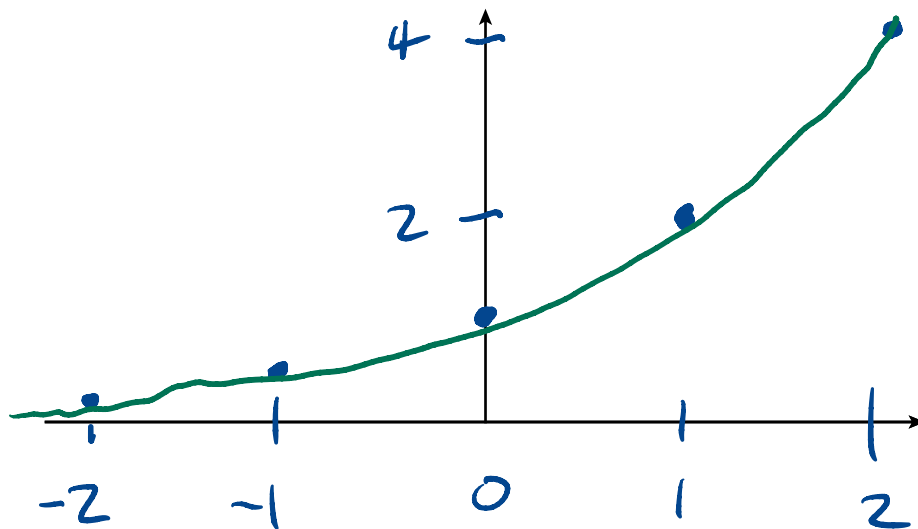
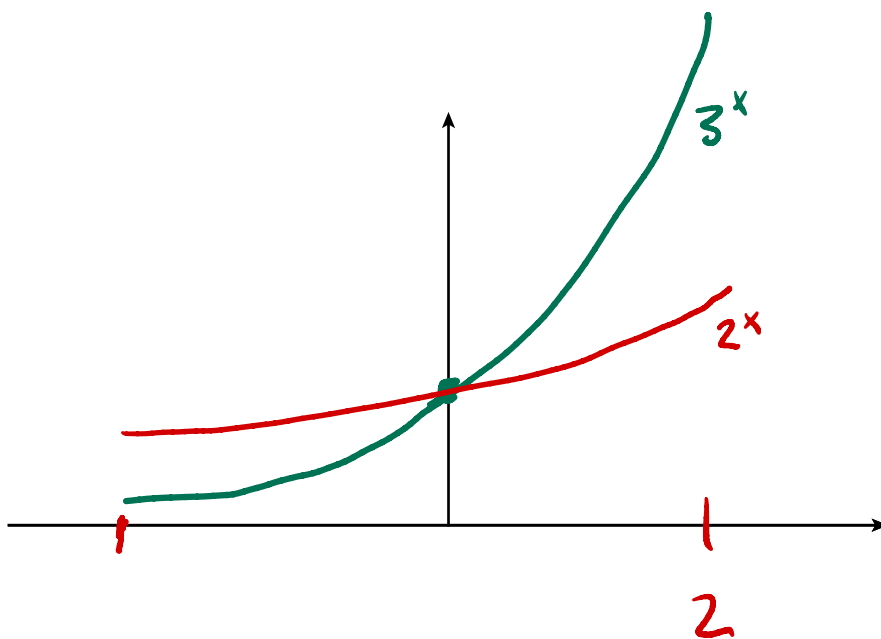


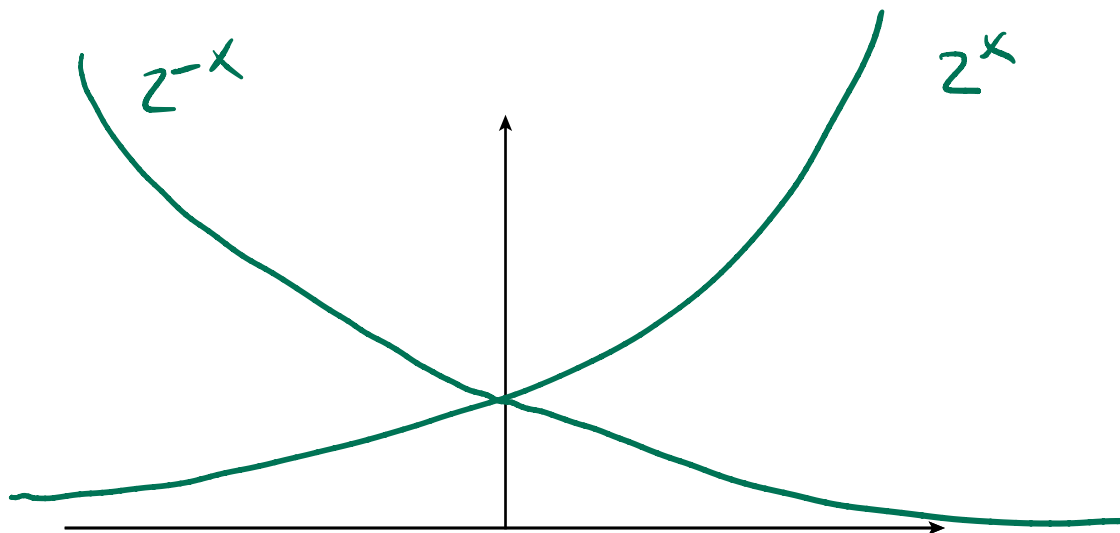
1. Sketch the graph of $f(x) = 2^x$ by plotting points at $x = -2, -1, 0, 1, 2$.



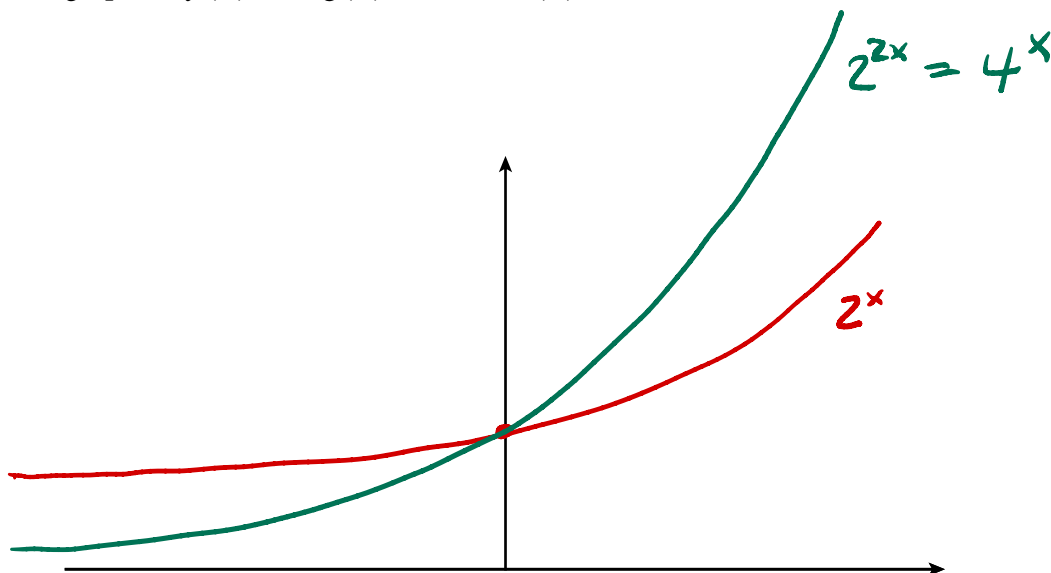
2. Sketch the graph of $f(x) = 3^x$ and $g(x) = 2^x$ on the same axes for $-2 \leq x \leq 2$.



3. Sketch the graph of $f(x) = 2^x$ and $g(x) = 2^{-x}$ on the same axes.



4. Sketch the graphs of $f(x) = 2^x$, $g(x) = 2^{2x}$ and $h(x) = 4^x$ on the same axes for $-2 \leq x \leq 2$.



5. I ingest a 100mg aspirin at noon. Aspirin in the body, at this dosage, has a half life of 3 hours. How much aspirin is in my body at:

a) 6pm

25

b) 3pm

50

c) 1pm (Maybe jump ahead and do the next problem right now!)

$$r(1) = 100 \cdot 2^{-1/3} = 79.37$$

d) 4:45pm

$$r(4.75) = 100 \cdot 2^{-4.75/3} = 33.37$$

6. Find a function $r(t)$ that describes the amount of aspirin in my body in the previous problem where t is measured in hours since noon and r is in milligrams.

$$r(t) = 100(.5)^{t/3}$$

7. A population of *e coli* starts with 500 cells at time $t = 0$ hours and doubles every three hours. Find a function $P(t)$ that describes the population size, where t is measured in hours and P is measured in number of cells.

$$P(t) = 500 \cdot 2^{t/3}$$

8. A population of Caribou is growing by 20% per year and starts with 1000 animals at time $t = 2010$. Find a function $P(t)$ that describes the population size where t is measured in calendar years and P is measured in the number of animals.

$$P(t) = 1000 (1.1)^{(t-2010)}$$