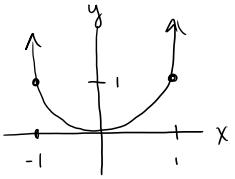
Graphs you should know so no one laughs at you when you pull out your calculator

① $y = mx + b$

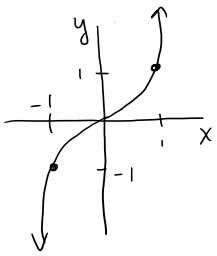
↑ slope ↑ y-intercept

graph is a line

② 

$y = x^2$

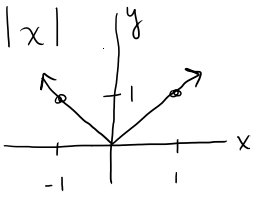
($y = x^{even}$ all look similar)

③ 

$y = x^3$

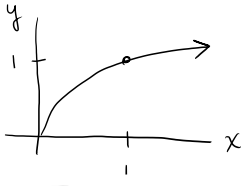
($y = x^{odd}$ all look similar)

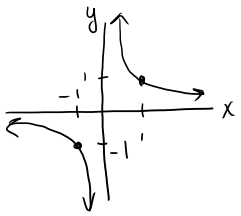
---

④ $y = |x|$ 

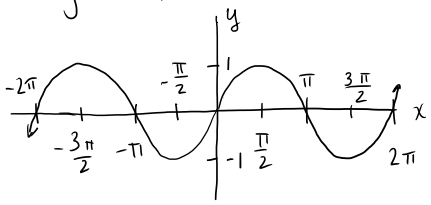
⑤ $y = \sqrt{x}$

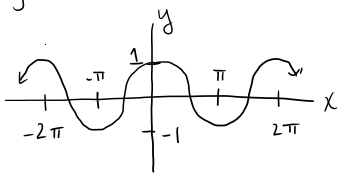
(other roots look essentially the same)

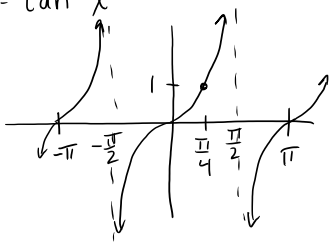


⑥ $y = \frac{1}{x}$ 

---

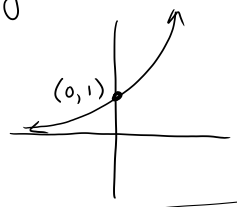
⑦ $y = \sin x$ 

⑧ $y = \cos x$ 

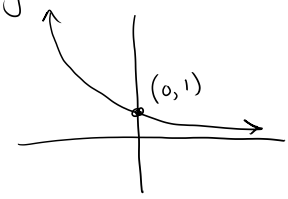
⑨ $y = \tan x$ 

---

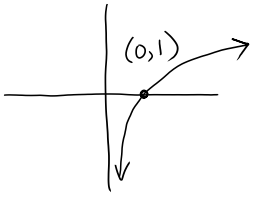
⑩ $y = e^x$ (or a^x for $a > 1$)



⑪ $y = e^{-x}$ (or a^x for $0 < a < 1$)



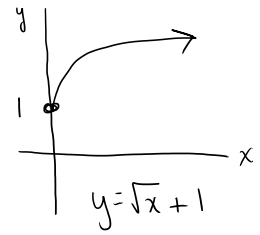
⑫ $y = \ln x$



Sample graph transformations:

① Vertical shift - move graph up or down, sign is "correct"

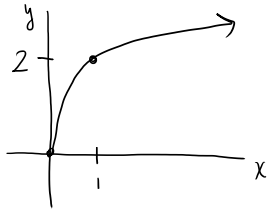
(positive moves up, neg. down)



② Vertical stretch - multiplies y-coordinates

$y = 2\sqrt{x}$

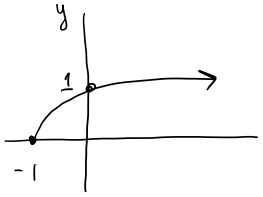
(Multiply by a number between 0 and 1: vertical compression)



③ Horizontal shift - move graph right or left, sign is "backwards"

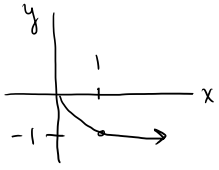
(positive moves left)

$y = \sqrt{x+1}$



④ Reflect through x-axis

$y = -\sqrt{x}$



⑤ Reflect through y-axis

$y = \sqrt{-x}$