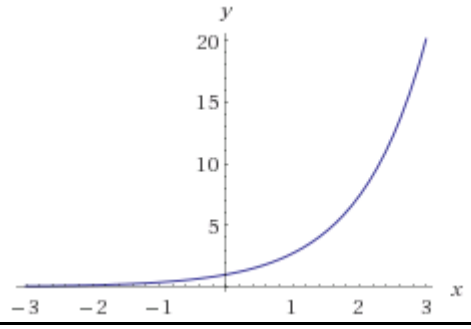
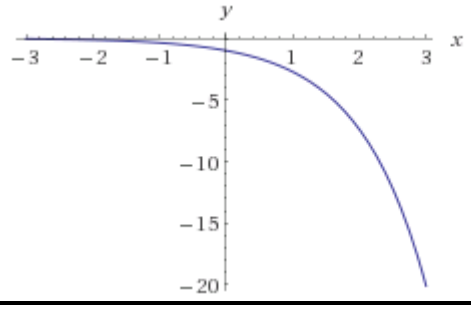
Function Battleship
Function List

e^x



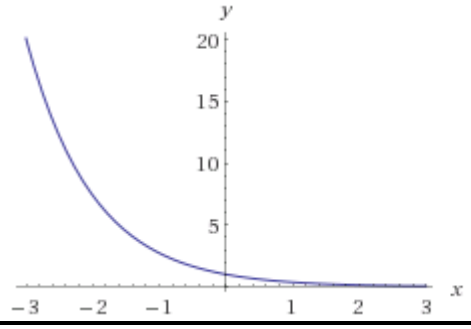
(x from -3 to 3)

$-e^x$



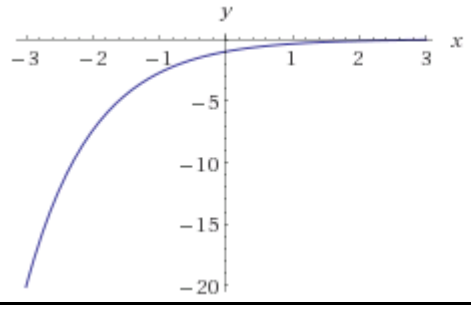
(x from -3 to 3)

e^{-x}



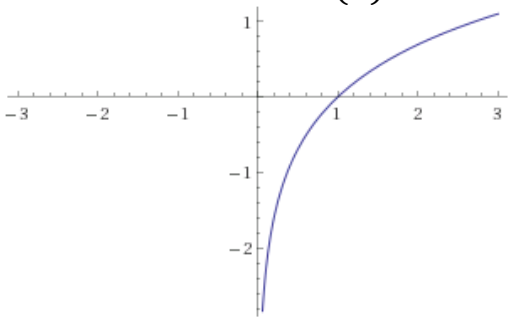
(x from -3 to 3)

$-e^{-x}$



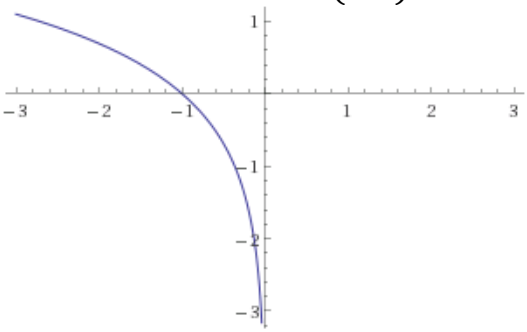
(x from -3 to 3)

$ln(x)$



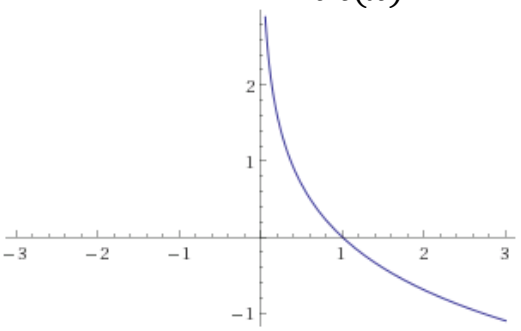
(x from -3 to 3)

$ln(-x)$



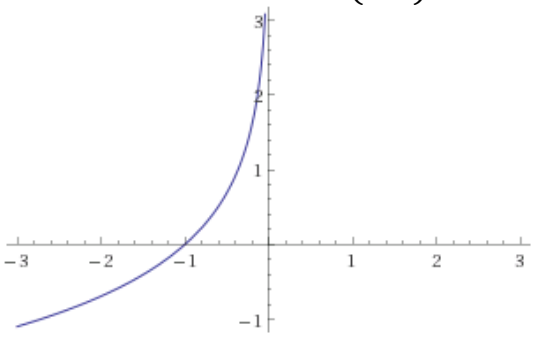
(x from -3 to 3)

$-ln(x)$



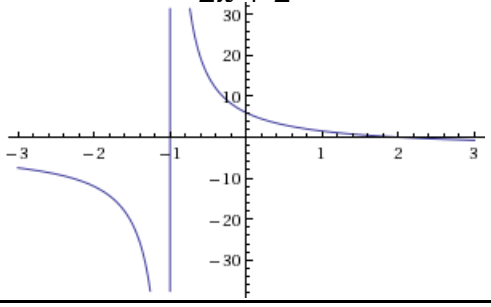
(x from -3 to 3)

$-ln(-x)$

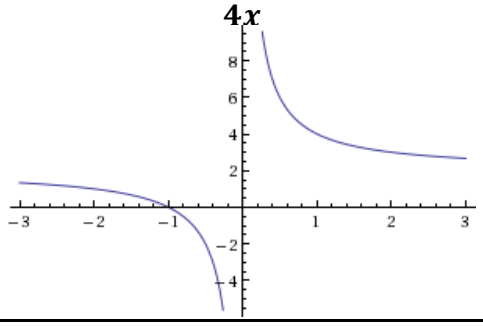


(x from -3 to 3)

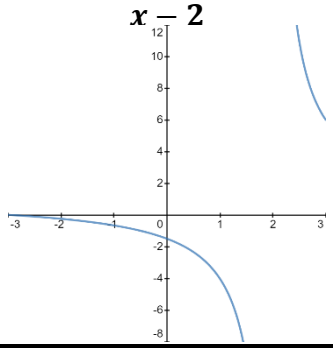
$$\frac{-6x+12}{2x+2}$$



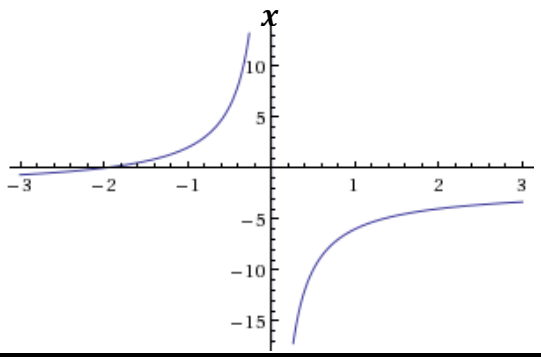
$$\frac{8x+8}{4x}$$



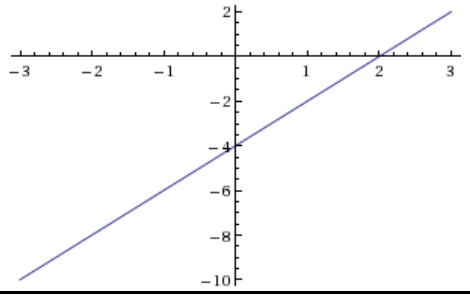
$$\frac{x+3}{x-2}$$



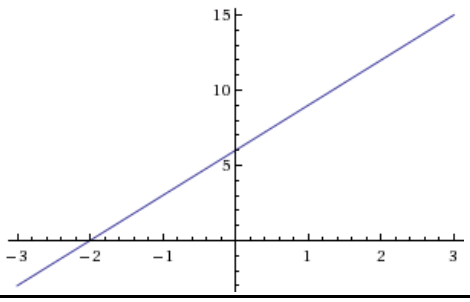
$$\frac{-2x-4}{x}$$



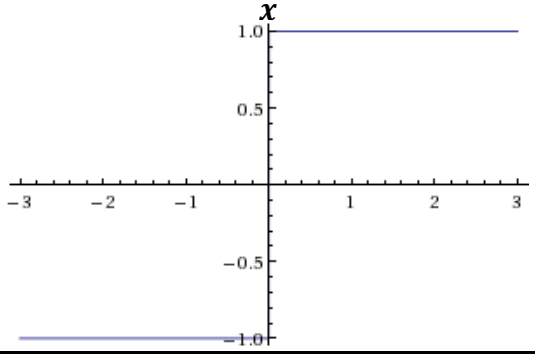
$2x - 4$



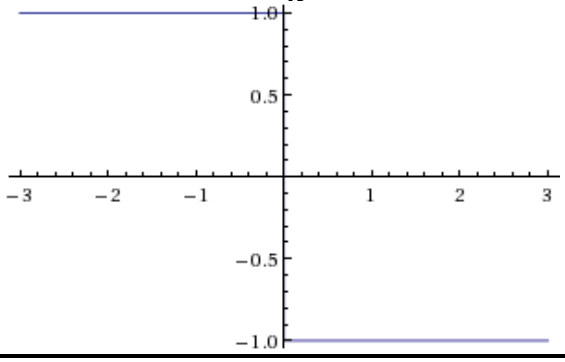
$3x + 6$



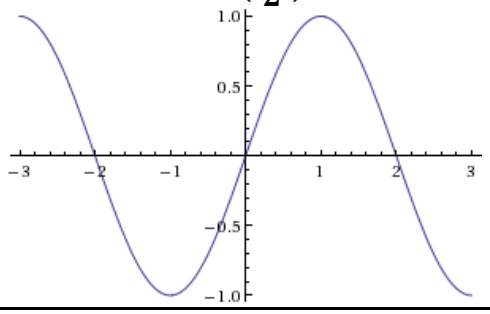
$\frac{|x|}{x}$



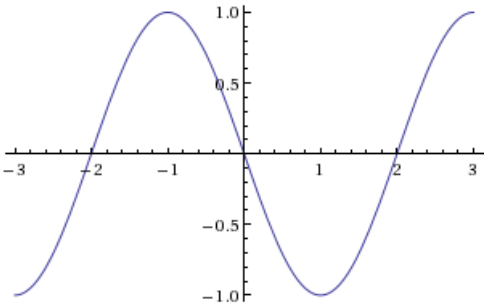
$-\frac{|x|}{x}$



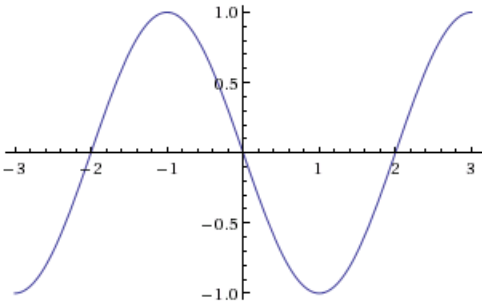
$$sin\left(\frac{\pi x}{2}\right)$$



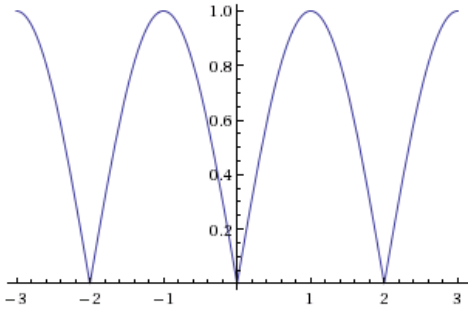
$$-sin\left(\frac{\pi x}{2}\right)$$



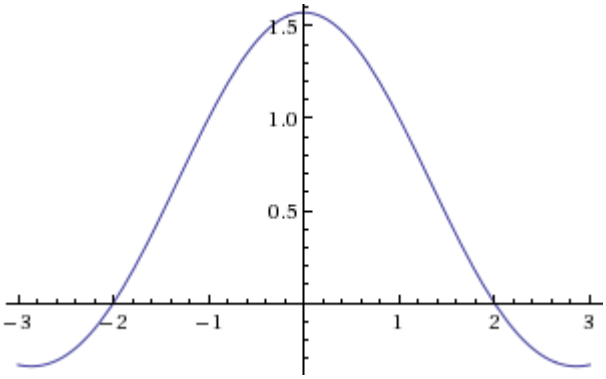
$$sin\left(\frac{-\pi x}{2}\right)$$



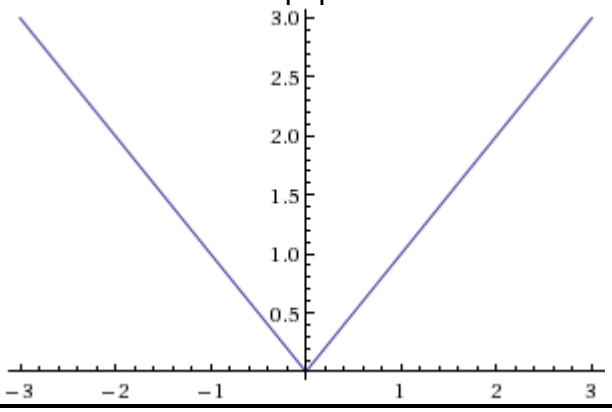
$$\left|sin\left(\frac{\pi x}{2}\right)\right|$$



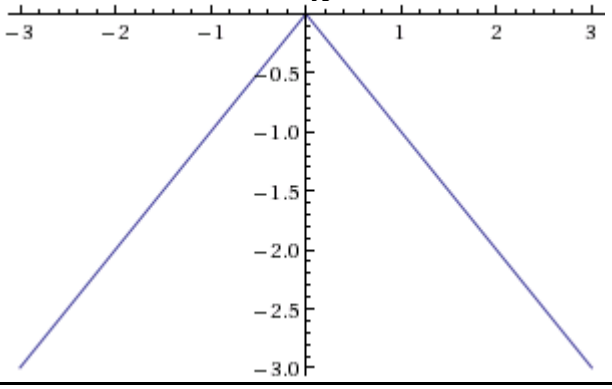
$$\frac{\sin\left(\frac{\pi x}{2}\right)}{x}$$



$$|x|$$



$$-\frac{|x|}{x}$$



Function Battleship Rules

1.) Each team picks a function from the list and doesn't tell the other team.
2.) Team 1 gives Team 2 a request (for example, Team 1 might request "D5".) These requests each signify the coordinates of a condition on the "Function Battleship Grid" (for example, the request D5 corresponds to the condition "Is f(x) concave up (-1,0)?")
3.) Team 2 processes Team 1's request (does their function satisfy that condition?) then tells Team 1 whether they got a 'hit' (Team 2's function satisfies the condition requested) or 'miss' (their function does not satisfy the condition requested) at the same time.
4.) Team 1 has 30 seconds to guess the other team's function. There is no penalty for guessing wrong (you just don't win yet).
5.) Team 2 tells Team 1 whether their guess was correct.
6.) Team 1 and Team 2 alternate being the guesser and being the answerer. If Team 1 guesses correctly first, Team 2 has one more chance (since Team 1 went first, so each team has an equal number of turns). If Team 2 guesses correctly first, the game is over.

Special Rules:
If your opponents answered a question incorrectly and you figure it out at the end, you win. If you both answered incorrectly, you both tie.

If your opponents gives "mutually fishy" answers (e.g. $\lim_{x\to\infty}$ is positive infinity, but the function is always decreasing) you can call the teacher over to check the opponents' answers. If your opponents answered incorrectly, the game is over and you win.

The question is asking if the function satisfies the property over the entire interval. So, for example, if the question is A3 (Is $f(x) > 0$ on (-∞ , 3) and the function is "Sin[x]", the answer would be 'miss' because the f(x) is not above the x-axis on that entire interval.

Tips:
As your opponent answers questions, you can color your grid according to their answers. For example, if they answer 'no' to E3, you can color that cell red. If they answer 'yes', you can color it green. This is a good way to keep track of their answers so far.

Please note you can guess on every turn, even the first one! A lucky guess on the first turn is as much of a win as an informed guess on the sixth turn!