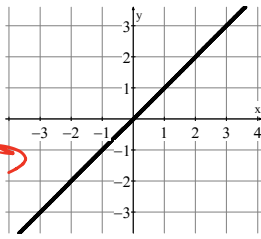


Write your questions and thoughts here!

12 Basic Functions:

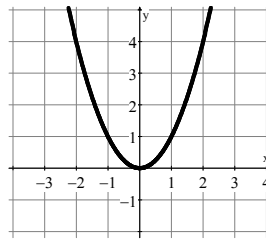
Parent graph
Parent function

Linear Function



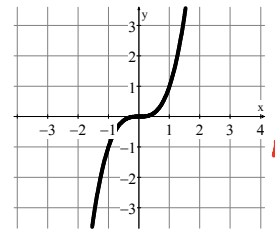
$f(x) = x$

Quadratic Function



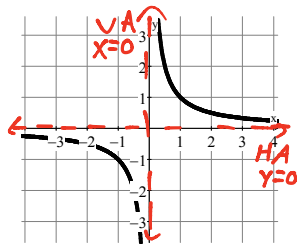
$f(x) = x^2$

Cubic Function



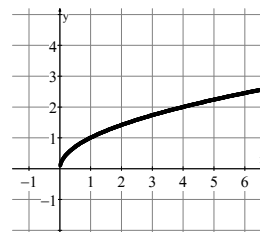
$f(x) = x^3$

RATIONAL Function



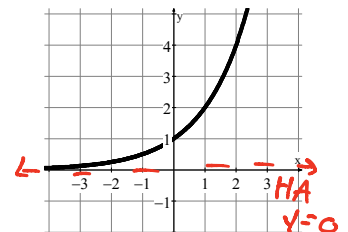
$f(x) = \frac{1}{x}$

Square root Function



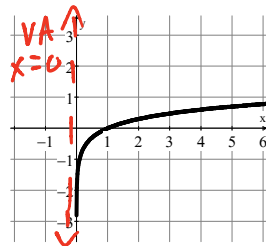
$f(x) = \sqrt{x}$

Exponential Function



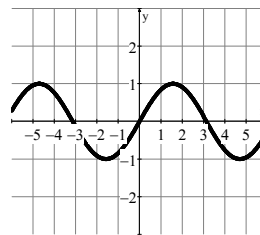
$f(x) = a^x = 2^x$

Logarithmic Function



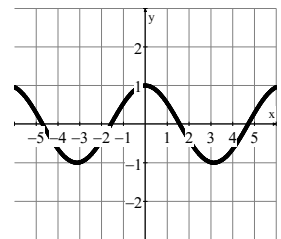
$f(x) = \log_a x$

Sine Function



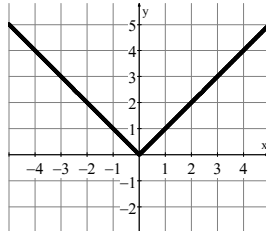
$f(x) = \sin(x)$

Cosine Function



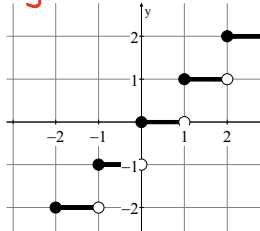
$f(x) = \cos(x)$

ABS Function



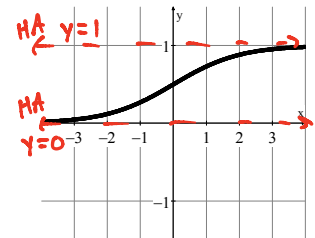
$f(x) = |x|$

Greatest Integer Function



$f(x) = \text{int}(x)$

Logistic Function

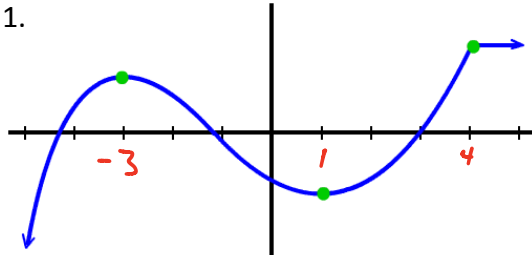


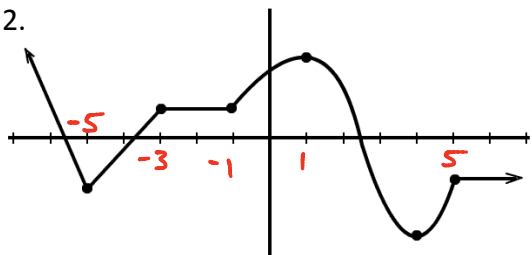
$f(x) = \frac{1}{1+e^{-x}}$

2.2 Domain & Range (Graphs)

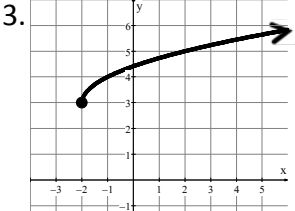
Write your questions and thoughts here!

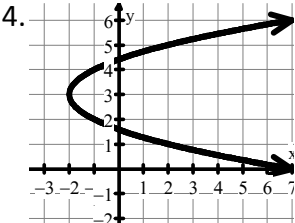
Increasing/Decreasing Functions:

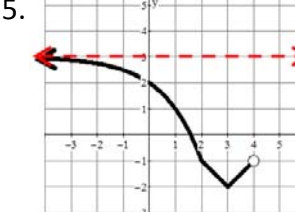
1.  The graph is increasing on: $(-\infty, -3) \cup (1, 4)$ The graph is decreasing on: $(-3, 1)$
The graph is constant on: $(4, \infty)$

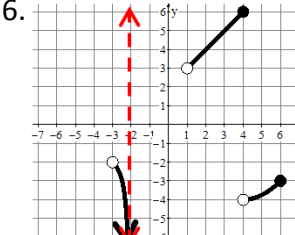
2.  The graph is increasing on: $(-5, -3) \cup (-1, 1) \cup (4, 5)$ The graph is decreasing on: $(-\infty, -5) \cup (1, 4)$
The graph is constant on: $(-3, -1) \cup (5, \infty)$

Domain and Range of a Graph:

3.  **Domain:** Interval: $[-2, \infty)$ Inequality: $x \geq -2$ **Range:** Interval: $[3, \infty)$ Inequality: $y \geq 3$

4.  **Domain:** Interval: $[-2, \infty)$ Inequality: $x \geq -2$ **Range:** Interval: $(-\infty, \infty)$ Inequality: \mathbb{R}

5.  **Domain:** Interval: $(-\infty, 4)$ Inequality: $x < 4$ **Range:** Interval: $[-2, 3]$ Inequality: $-2 \leq y < 3$

6.  **Domain:** Interval: $(-3, -2) \cup (1, 6]$ Inequality: $-3 < x < -2$ or $1 < x \leq 6$ **Range:** Interval: $(-\infty, -2) \cup (3, 6)$ Inequality: $y < -2$ or $3 < y \leq 6$

Now summarize what you learned!
