

AP Calc AB – Chapter 1 Review

2 parts – Part 1: No Calc that has MC and Free Response, Part 2: Calc OK that has MC and Free Response

No Calc:

- know how to find zero's of a polynomial and roots
- know what how to find arcsin, arccos, arctan
- know how to graph absolute value
- know how to determine domain and range
- know how to find horizontal and vertical asymptotes
- know how to shift/transform a graph
- couple of interpreting the graph questions like those in the homework

Calc:

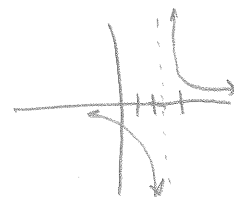
- know how to do compositions of functions $f(g(x))$
- know how to determine odd/even functions
- know how to sketch a graph and determine asymptotes/holes/domain/range/roots, etc...
- know how to determine end behavior
- know how to sketch the inverse
- be able to do the difference quotient like homework & warmups

Sample problems.

1. Sketch a graph of: $f(x) = \frac{x+1}{2x^2-3x-5} = \frac{x+1}{(2x-5)(x+1)}$

Find all vertical and horizontal asymptotes and any holes.

hole @ $x=1$ horit men
Vert asympt $x=\frac{5}{2}$ asympt so
 $y=0$



2. Use the table to find:

a) $(f \circ g)(4)$

b) $(g \circ f)(2)$

x	1	2	3	4
f(x)	5	3	-2	-8
g(x)	7	12	20	2

a) $g(4) = 2$
 $f(g(4)) = f(2) = 3$

b) $f(2) = 3$
 $g(f(2)) = g(3) = 20$

3. Suppose you had $y = x^3$ and reflected this about the y-axis and then shifted it up 5. What would the new equation be?

$$f(x) = (-x)^3 + 5$$

4. Are the functions odd, even or neither?

a) $y = e^x$

neither

b) $y = \sin x$

neither

c) $y = \log x$

neither

5. Find the zero's of the function and describe the end behavior. $f(x) = -3x(x-2)(x+1)(x-5)$

Is this function odd, even or neither?

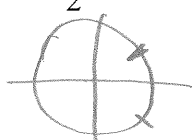
zeros $\rightarrow 0, 2, -1, 5$, Neither

6. If shown a graph, know how to sketch the inverse.

7. Find the difference quotient $\frac{f(a+h)-f(a)}{h}$ of $f(x) = x^2 + 2x - 5$

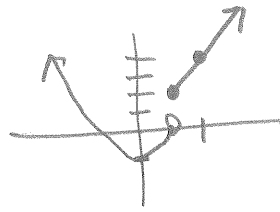
$$\rightarrow \boxed{2x+2+h}$$

8. Find the arccos $\frac{\sqrt{2}}{2}$



$\frac{\pi}{4}$ or $\frac{7\pi}{4} + k\pi$
 $\downarrow + k\pi$

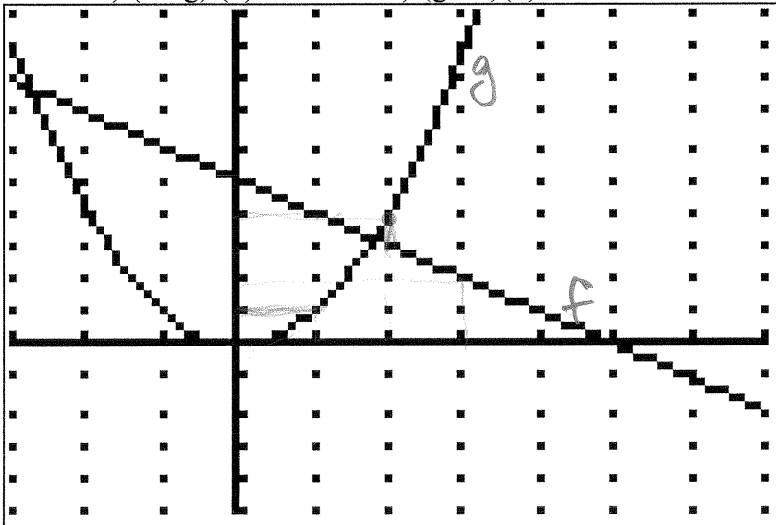
9. Graph $f(x) = \begin{cases} x^2 - 1, & x < 1 \\ 2x, & x \geq 1 \end{cases}$



10. Use the graph given to evaluate each.

a) $(f \circ g)(1)$

b) $(g \circ f)(3)$



(a) $g(1) = 1$
 $f(g(1)) = 4$

(b) $f(3) = 2$
 $g(f(3)) = 4$