

19. (3 pts) Given that  $h(x) = (f \circ g)(x)$ . Identify  $f$  and  $g$ .

$h(x) = (x+3)^2$   $f(x) = \underline{x^2}$   $g(x) = \underline{x+3}$   
 (reversed -2)

20. (3 pts ea) Solve the following equations. Check all solutions.

a.)  $2x^3 - 8x = 0$

$2x(x^2 - 4) = 0$

$x = 0, \pm 2$

↑  
 (-1)

b.)  $\sqrt{20-8x} = x$

$20 - 8x = x^2$

$x^2 + 8x - 20 = 0$

$(x+10)(x-2) = 0$

$x = 2, -10$

rational  
 (-1)

Use interval notation to express the solution set.

c.)  $5x + 11 \leq 26$

$5x \leq 15$

$x \leq 3$

$(-\infty, 3]$

↑  
 (-1)

not interval?  
 -1 total

d.)  $-2|x+1| > -18$

$|x+1| < 9$

$x+1 < 9$

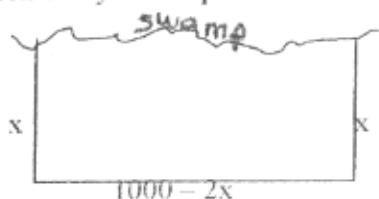
$x < 8$

$x+1 > -9$

$x > -10$

$(-10, 8)$

21. (3 pts) You have 1000 feet of fencing to enclose a rectangular plot of land that borders a swamp. Since your emus fear mud you don't need a fence there. Find the length and width of the plot to maximize the area. Once again, guess and check will yield no points.



$x(1000 - 2x) = 1000x - 2x^2$  ← 2pts

max  $x$  at  $-\frac{b}{2a} = -\frac{1000}{2(-2)} = 250$

22. (3 pts) Use the Intermediate Value Theorem to determine if the polynomial function  $f(x) = 2x^4 - 1$  has a zero between 0 and 1?

Find  $f(0) = \underline{-1}$  Find  $f(1) = \underline{1}$  Does a zero exist? (Yes) No

1 pt each