Name_____ Group_____ /18

Functions: Absolute Value Functions

(each question is worth 2 points)

1) Solve the following inequality: $-|2x + 4| + 8 \leq 2$

2) Given $f(x) = -2x + 6, g(x) = 3|-3x + 27| - 8,$ and $h(x) = f\big(g(x)\big)$
Determine the vertex of $h(x)$

3) What are the zero(s) for the following function: $f(x) = 4|-x + 3| - 7$

4) Given $g(x) = 2|4x + 12| - 3$, solve for $g(2)$

5) Find the rule of an absolute value function has a vertex of $(4, 7)$ and a y-intercept of -5

6) Solve the following inequality: $3|x + 2| + 15 \geq 5|x + 2|$

7) Find the rule of an absolute value function that passes through the points $(-12, 23), (-15.5, 30), \text{and } (6, 23)$

8) Given $f(x) = 3\sqrt{-2x + 6} + 3$ which of the following functions never intersects with $f(x)$?

A) $g(x) = 2|3x + 6| + 10$

B) $h(x) = 2|3x + 6| - 10$

C) $i(x) = -2|3x + 6| + 10$

D) $j(x) = -2|3x - 6| + 10$

9) Given $f(x) = a|b(x - h)| + k$, where $a > 0, b < 0, h > 0, k < 0$

Which of the following is NOT true:

A) The domain of the function is $]-\infty, +\infty[$

B) The range of the function is $]-\infty, k]$

C) The function has 2 zeros

D) The function is increasing over $[h, +\infty[$