

1. (4pts)

Find the implied domain for $f(x) = \frac{\sqrt{x^2 - 4x - 5}}{x + 2}$,

and evaluate

$f(6)$ if possible.

2. (8 pts)

Given $A(-2, 2)$ and a line $L: 3x + y = 2$,

(1) Find a parallel line M and a perpendicular line N pass through A .

(2) Let $B(x_2, y_2)$ be the intersection of L and N .

$C(x_3, y_3)$ is on the line M . What are the coordinates of the B and C ?

3. (8 pts)

Graph $f(x) = -\frac{3}{2}|x+2| + \frac{1}{2}|x-4|$ for the entire domain and identify (1) when $f(x)$ will be increasing, decreasing or constant. (2) the relative maximums and relative minimums.



4. (4 pts)

Sketch $f(x)$, find x and y intercept of $f(x)$ if

$$f(x) = \begin{cases} -x^2 + x - 1, & x \leq -2 \\ -x - 2, & x > 5 \end{cases}$$

5. (4 pts)

Graph $h(x)$ based on the given parent function $f(x)$.

Identify the transformations.

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

$$h(x) = \sqrt{4x-3} + 4$$