

MATH 1314 MLM Mid-Term Exam Formula Sheet

$$|X| = p \rightarrow X = p \text{ or } X = -p \quad |X| < p \rightarrow -p < X < p \quad |X| > p \rightarrow X > p \text{ or } X < -p$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$y = mx + b$$

$$y - y_1 = m(x - x_1)$$

$$(f + g)(x) = f(x) + g(x)$$

$$(f - g)(x) = f(x) - g(x)$$

$$(fg)(x) = f(x) \cdot g(x)$$

$$\left(\frac{f}{g}\right)(x) = \frac{f(x)}{g(x)}$$

If $a = 0$ or $b = 0$, then $ab = 0$.

If $a = b$ is true, then $a^n = b^n$ is true for any natural number n .

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a^2 + b^2 = c^2$$

Algebraic Tests of Symmetry

x-axis: If replacing y with $-y$ produces an equivalent equation, then the graph is *symmetric with respect to the x-axis*.

y-axis: If replacing x with $-x$ produces an equivalent equation, then the graph is *symmetric with respect to the y-axis*.

Origin: If replacing x with $-x$ and y with $-y$ produces an equivalent equation, then the graph is *symmetric with respect to the origin*.

Even Functions and Odd Functions

If the graph of a function f is symmetric with respect to the y -axis, we say that it is an **even function**. That is, for each x in the domain of f , $f(x) = f(-x)$.

If the graph of a function f is symmetric with respect to the origin, we say that it is an **odd function**. That is, for each x in the domain of f , $f(-x) = -f(x)$.