Quiz 1 Review Guide: Sections 1.1–1.3

Name: _____ HR: _____

Covers: The Cartesian plane, Distance & Midpoint Formulas, graphs of equations, intercepts, symmetry, circles, slope, and equations of lines.

Section 1.1 — Rectangular Coordinates

Distance Formula	***Midpoint Formula***	***Quadrant Signs***
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ *Quick check: distance between (0,0) and (3,4)?*	$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$ *Just average the x's and average the y's.*	QI (+,+) QII (−,+) QIII (−,−) QIV (+,−) *On an axis → not in any quadrant.*

Section 1.2 — Graphs of Equations

Intercepts	***Symmetry Tests***	***Circles***
x-intercept: let y = 0, solve for x. Written (a, 0). y-intercept: let x = 0, solve for y. Written (0, b).	y-axis: replace x with −x x-axis: replace y with −y origin: replace x with −x AND y with −y *If the equation stays the same, that symmetry applies.*	$(x - h)^2 + (y - k)^2 = r^2$ *Center (h, k), radius r. Comes straight from the Distance Formula!*

Section 1.3 — Linear Equations in Two Variables

Slope	***Equations of a Line***	***Parallel & Perpendicular***
$m = \frac{y_2 - y_1}{x_2 - x_1}$ *m > 0 rises, m < 0 falls, m = 0 horizontal, undefined = vertical.*	Slope-intercept: $y = mx + b$ Point-slope: $y - y_1 = m(x - x_1)$	Parallel lines: same slope **$m_1 = m_2$** Perpendicular lines: negative reciprocal slopes **$m_1 = -1/m_2$**

Quick Self-Test (no calculator — try these cold, then check against your notes)

1. Find the distance between (1, −2) and (4, 2).	2. Find the intercepts of y = 2x − 6.	3. Find the slope through (0, 3) and (6, −3).