AP Calculus AB
Dr. Paul L. Bailey

Activity 0808
Thursday, August 8, 2024

Name:

Problem 1. A line has slope $m = 3$ and goes through the point $(2, -8)$.

(a) Find the point-slope form of the equation of the line.

(b) Find the slope-intercept form of the equation of the line.

Problem 2. Let $A = (2, 5)$ and $B = (8, 7)$.

(a) Find the midpoint of $\overline{AB}$.

(b) Find the slope of $\overleftrightarrow{AB}$.

(c) Find the point-slope form of the equation of the line $\overleftrightarrow{AB}$.

(d) Find the slope-intercept form of the equation of the line $\overleftrightarrow{AB}$.

Problem 3. A line has equation $y = -4x + 5$.

(a) Find the equation of a parallel line which goes through the point $(1, 7)$.

(b) Find the equation of a perpendicular line which goes through the point $(1, 7)$.

Problem 4. Let $A = (5, 2)$ and $B = (1, 10)$.
Find the slope-intercept form of the equation of the line through A and B.

Problem 5. Let $A = (5, 2)$ and $B = (1, 10)$.
Determine whether or not the following points are on the line $\overleftrightarrow{AB}$. Show work that proves your answer.

(a) $(0, 10)$

(b) $(0, 12)$

(c) $(6, 0)$

(d) $(8, 0)$

(e) $(3, 6)$

(f) $(-2, 16)$

(g) $(-1, 10)$

(h) $(2, 6)$

(i) $(2, 8)$

(j) $(2, 10)$

Problem 6. Sketch the sets.

((a)) $\{(x, y) \in \mathbb{R}^2 \mid (x - 2)(y - 3) = 0\}$

((b)) $\{(x, y) \in \mathbb{R}^2 \mid y \geq 2x + 1\}$