MATH 110 Review Problem Set 0.B

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The following problems based on Appendix B of the textbook will help you review. *You do not need to hand in solutions to these problems.*

1. (Based on B.1–6) Find the distance between the given points.

   (a) $(1,2)$, $(4,6)$ (b) $(2,-5)$, $(-3,7)$ (c) $(-1,-3)$, $(-2,6)$ (d) (b,a), (a,b)

2. (Based on B.7–10) Find the slope of the line through P and Q.

   (a) $P(2,4)$, $Q(5,9)$ (b) $P(-3,5)$, $Q(2,-6)$ (c) $P(-1,0)$, $Q(-3,-7)$

3. (Based on B.17–18) Sketch the graph of the equation.

   (a) $x = 2$ (b) $y = -3$

4. (Based on B.21–36) Find an equation of the line that satisfies the given conditions.

   (a) Through $(-3,1)$, slope $-5/3$
   (b) Through $(1,-3)$ and $(-4,-2)$
   (c) Slope 2, y-intercept 5
   (d) x-intercept 4, y-intercept -3
   (e) Through $(1,-4)$, parallel to the x-axis
   (f) Through $(1,-4)$, parallel to the y-axis
   (g) Through $(2,-3)$, parallel to the line $4x-5y=7$
   (h) Through $(-1/2,5/3)$, perpendicular to the line $3x+7y=2$

5. (Based on B.37–42) Find the slope and y-intercept of the line and draw its graph.

   (a) $x+2y=0$ (b) $3x-4y=0$ (c) $y=2$ (d) $3x-2y-5=0$

6. (Based on B.43–49) Sketch the graph of the region in the xy-plane.

(a) $\{(x,y)\,|\,y<0\}$

(b) $\{(x,y)\,|\,x\le 2 \text{ and } y>1\}$

(c) $\{(x,y)\,||y|<3\}$

(d) $\{(x,y)\,||x|<4 \text{ and } |y|<3\}$

7. (Based on B.11) Consider the points $A(1,0)$, $B(-2,-3)$, and $C(-3,1)$. Show that the distance between A and C is the same as the distance between B and C.

8. (Based on B.14)

   (a) Show that the points $A(-4,7)$, $B(0,-5)$, and $C(2,-11)$ are collinear (lie on the same line) by showing that $|AB|+|BC|=|AC|$.

   (b) Use slopes to show that A, B, and C are collinear.

9. (Based on B.19–20) Sketch the graph of the equation.

   (a) $|x|=2$

   (b) $xy=0$

10. (Based on B.50–52) Sketch the region in the xy-plane.

    (a) $\{(x,y)\,|\,2y<3x-5\}$

    (b) $\{(x,y)\,|\,3-x<y<3+2x\}$

11. (Based on B.53) Find a point on the y-axis that is equidistant from $(4,-3)$ and $(2,5)$.

You may find the following additional exercises from Appendix B helpful.

B C-level: 1–6, 7–10, 17–18, 21–36, 37–42, 43–44, 46–49;
B-level: 11, 13–16, 19–20, 50–52;
A-level: 12, 45, 53–62