11.14 Exit note: Perpendicular bisectors

1. The line l has the equation $y = -3x - 2$.

   (a) What is the slope of line l?

   (b) Rewrite the equation of l in the form $ax + by = c$.

2. (a) Find the slope m of the line $3x - y = 12$.

   (b) Write down the slope perpendicular to the line, $m_\perp$.

3. Write down the slope perpendicular to the given slope.

   (a) $m = -\frac{3}{2}$ $m_\perp =$ (b) $m = 2$ $m_\perp =$

4. The line segment $\overline{AB}$, $A(1, 7)$ and $B(9, 3)$, is shown below.

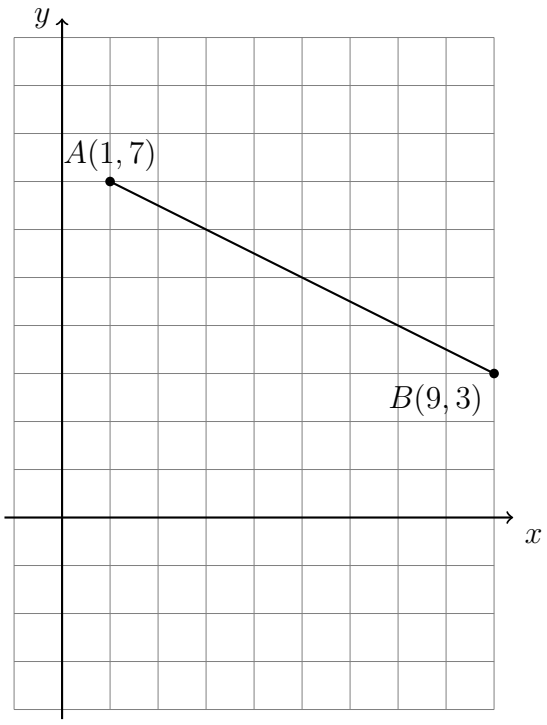
   (a) Mark the midpoint M of $\overline{AB}$. Label it as an ordered pair.

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

   (c) Write down the slope perpendicular to $\overline{AB}$.

   (d) Write down the equation of the perpendicular bisector of $\overline{AB}$.

   (e) Draw the perpendicular bisector on the graph.



5. Write down the equation of the line through $(2, 3)$ with a slope of -2.

6. The line l has the equation $y - 5 = -3(x - 2)$. Rewrite the equation in slope-intercept form, $y = mx + b$.

7. Quadrilateral $ABCD$ is shown on the graph below with $A(-1, -2)$, $B(5, 2)$, $C(2, 6)$, and $D(-4, 2)$. Calculate the slopes of the four sides and show that $ABCD$ is a parallelogram but not a rectangle.