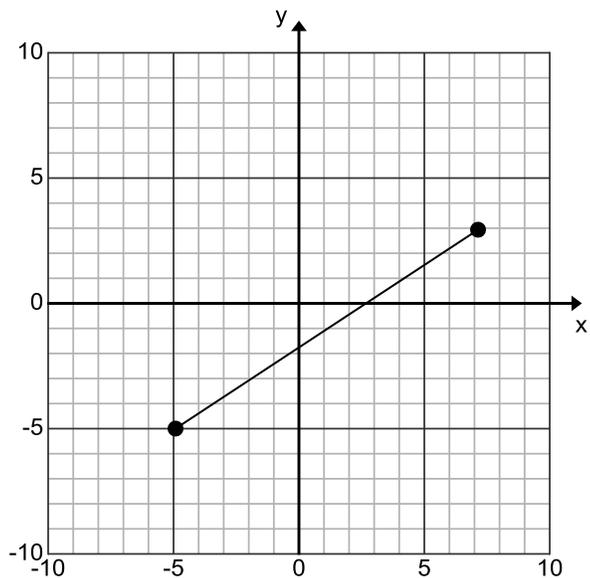


Recall point-slope equation for a line: $y - y_1 = m(x - x_1)$

1. Given the graph at right



a. Write the equation of the perpendicular bisector of \overline{AB} (which passes through the **midpoint**). *Look in Unit 3 Lesson Summaries for help.*

b. Graph the perpendicular bisector and name it line l .

c. Construct the perpendicular bisector of \overline{AB} using your compass and straightedge. Label this line m . Is it coincident with line l ? _____

d. Plot point $P(3, -4)$

e. Is triangle APB isosceles? How did you determine that?

f. Can you use another vocabulary to describe how point P is the same distance from A as from B ?

g. Do you think this is true for any point on line m ? Why? Explain your reasoning?

2. Using the angle at right, complete the following.

Show all work for your calculations.

a. Using your compass and straightedge, construct the angle bisector of $\sphericalangle JKL$. Label it \overrightarrow{KN} .

b. Is P on the angle bisector \overrightarrow{KN} ? _____

c. Using your universal angle maker, determine if $\overline{KJ} \perp \overline{PJ}$? _____ $\overline{KL} \perp \overline{PL}$? _____

d. Is $\triangle JKP \cong \triangle LKP$? _____ What criteria can you use? _____

e. Why is $\overline{PJ} \cong \overline{PL}$? _____

f. Would this work if we drew segments from P to points other than J and L on the angle's side rays? _____

g. Therefore, a point on the angle bisector ray is equidistant to the angle's side rays only if it creates segments that are _____ to the side rays.

h. EXTEND: Draw another point on \overrightarrow{KN} and label it Q. Show where you could draw in two congruent segments using your point Q.

