

2.5 Problems: Slope, Length and Midpoint

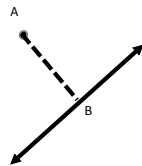
Ex.1 Determine the radius of a circle with endpoints of a diameter M(-3,5) and N(9,7).

INVESTIGATE: What is the shortest distance from a point to a line?

- Draw a line and a point.
- Connect the point and line with several line segments.
- Measure the line segments.
- Which is the shortest? What are its properties?



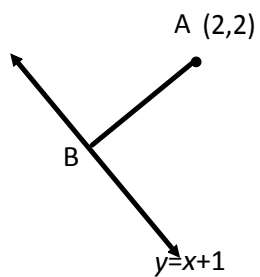
How do you find this length?



To get the distance from A to B we need...

See the next example for the strategy.

Ex. 2 Find the shortest distance from $(2,2)$ to the line $y = x+1$.



We need B to get the distance from A to B...
How do we find the coordinates of B?

B is _____.

Find B using _____.

\therefore We need _____.

Ex.3 Given the line containing the points $(0,4)$ and $(12,10)$, determine the distance from $A(6,19)$ to the line.

How is this question different from the last one?

