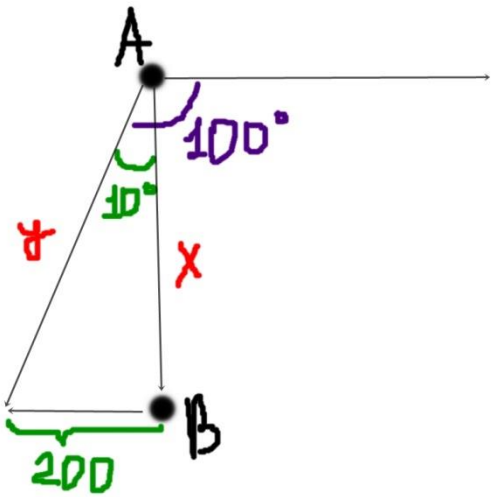
Answer on Question #44183, Math, Trigonometry

An airplane departs city A and travels at a bearing of 100°. City B is directly south of city A. When the plane is 200 miles east of city B, how far has the plan traveled? How far apart are city A and City B?

Solution.



$$\cos 10^0 = \frac{x}{y};$$

$$\sin 10^0 = \frac{200}{y} \Rightarrow y = 200\sin 10^0;$$

$$x = y\cos 10^0 = 200\sin 10^0 \cos 10^0 = 100\sin 20^0;$$

How far apart are city A and City B? **Answer:** $x = 100\sin 20^0$.

how far has the plan traveled? **Answer:** $y = 200\sin 10^0$.