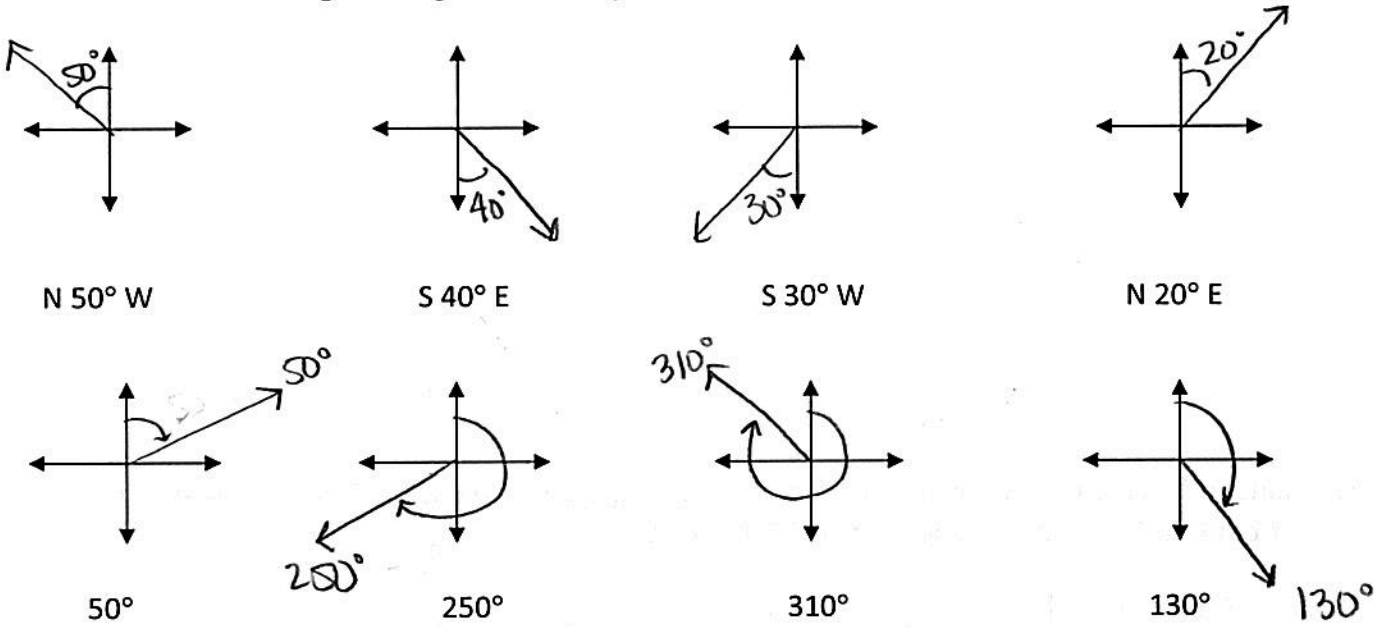


Pre-AP Precal WS Heading and Bearing

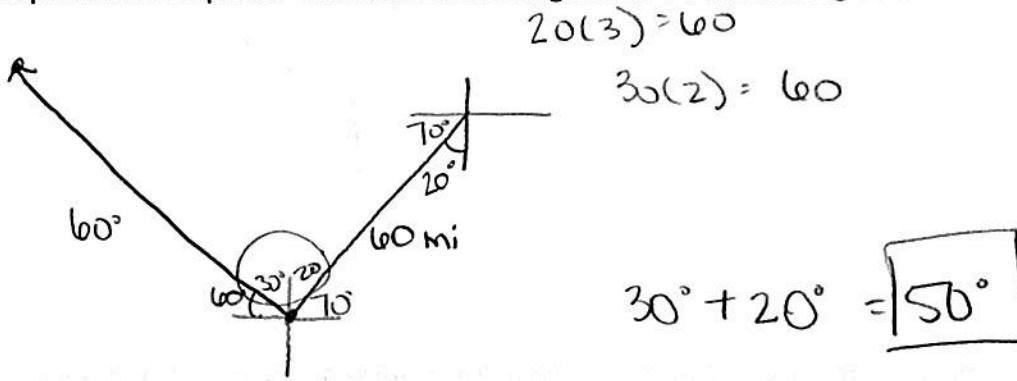
Name Key

1. Draw the following headings and bearings.

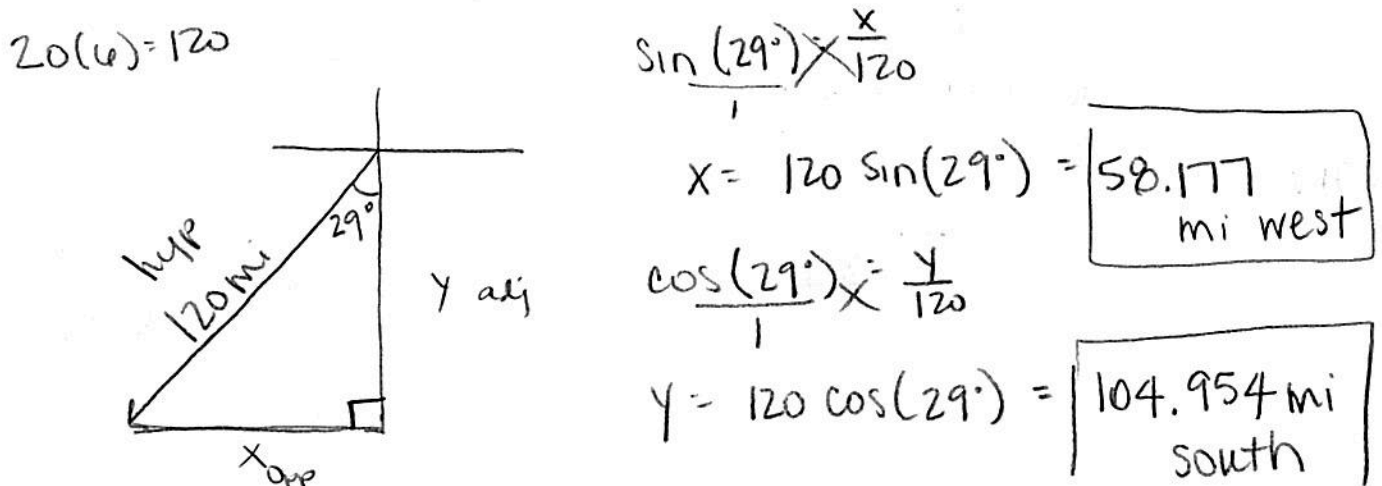


For the following problems, draw a diagram and solve.

2. A ship travels at a speed of 20 mph for 3 hours on a bearing of 200° . It then changes directions and travels at a speed of 30 mph for 2 hours on a bearing of 330° . Find the angle between the two paths.

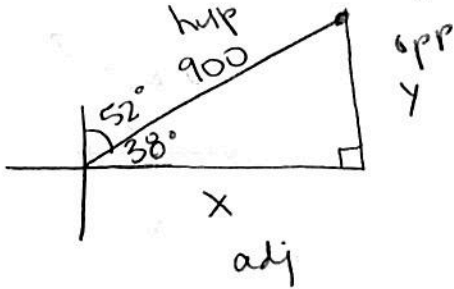


3. A ship leaves port at noon and has a heading of $S 29^\circ W$. The ship sails at 20 knots per hour. How many nautical miles south and how many nautical miles west does the ship travel by 6:00pm?



$$600(1.5) = 900$$

4. An airplane flying at 600 miles per hour has a bearing of 52° . After flying for 1.5 hours, how far north and how far east has the plane traveled from its point of departure?



$$\frac{\sin(38^\circ) \times \cancel{900}}{\cancel{900}}$$

$$y = 900 \sin(38^\circ) = 554.095 \text{ mi North}$$

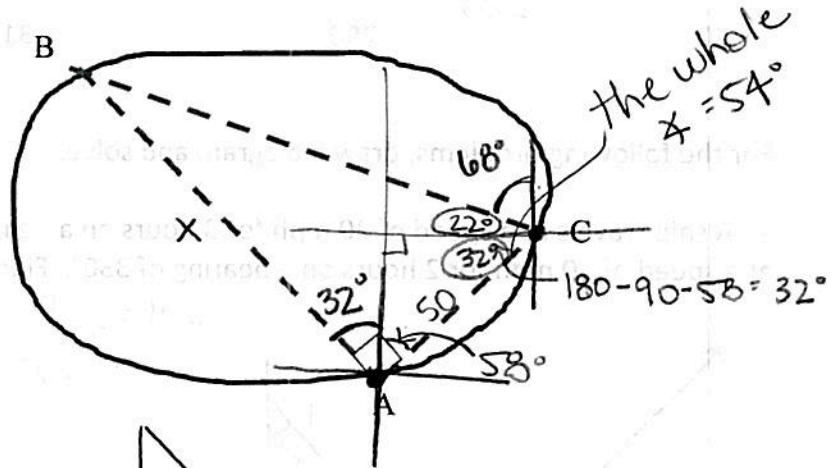
$$\frac{\cos(38^\circ) \times \cancel{900}}{\cancel{900}}$$

$$x = 900 \cos(38^\circ) = 709.209 \text{ mi East}$$

5. A surveyor wants to find the distance across a pond. The heading from A to B is $N 32^\circ W$. The surveyor walks 50 meters from A to C, and at C the heading to B is $N 68^\circ W$.

a) Find the heading from A to C. N 58° E

b) Find the distance from A to B. 68.819 m

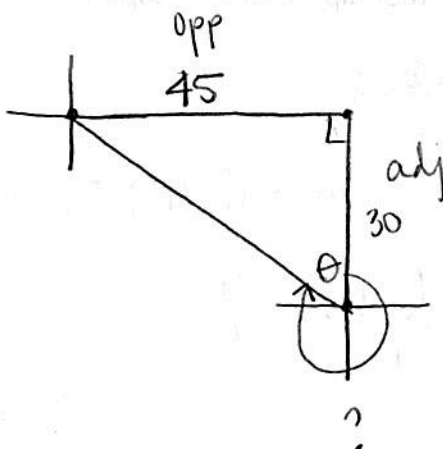


$$\frac{\tan(54^\circ) \times \cancel{50}}{\cancel{50}}$$

$$x = 50 \tan(54^\circ) = 68.819$$



6. A ship is 45 miles east and 30 miles south of port. The captain wants to sail directly to port. What angle should the captain take? Give answer in heading & bearing notation.



$$\tan \theta = \frac{45}{30}$$

$$\theta = \tan^{-1}\left(\frac{45}{30}\right) = 56.309$$

Bearing: $360 - 56.309$

$$= 303.691^\circ$$

Heading: N 56.309° W