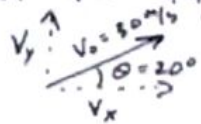


Name: \_\_\_\_\_

Cooper kicks a soccer ball at  $30 \text{ m/s}$  at an angle of  $\theta = 20^\circ$ . Cooper kicks the ball east.



① Find the  $V_x$  and  $V_y$  components:

$V_x$ :

$V_y$ :

② Given that the ball lands at the same height, how much time will it spend in the air?

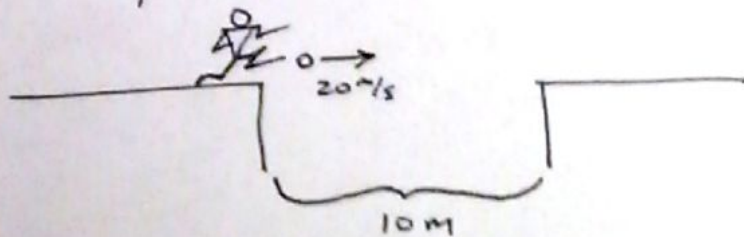
③ What is the maximum height reached by the ball?

④ What is the horizontal distance traveled by the ball?

⑤ What is the horizontal speed when the ball lands?

⑥ The soccer goal is 3 meters high and 40 meters east of Cooper. Will he score a goal? Why or why not? Explain.

Jordan is standing on the edge of a cliff. The distance to the other side is 10 meters. Jordan kicks a stone horizontally off the cliff at a speed of  $20\text{ m/s}$ .

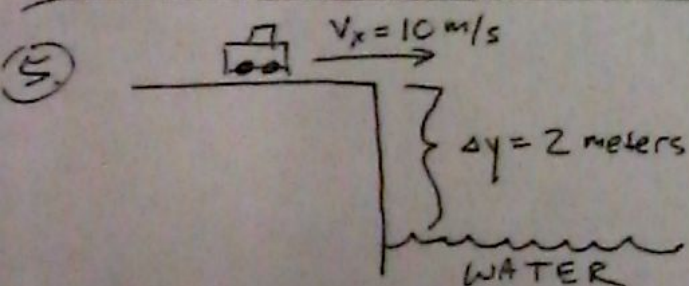


① How much time will it take the stone to reach the other side?

② How far vertically will the stone fall before hitting the other cliff side?

③ What is the impact speed of the stone?

④ What is the impact angle of the stone?



⑤ How far horizontally will the car travel before hitting the water?