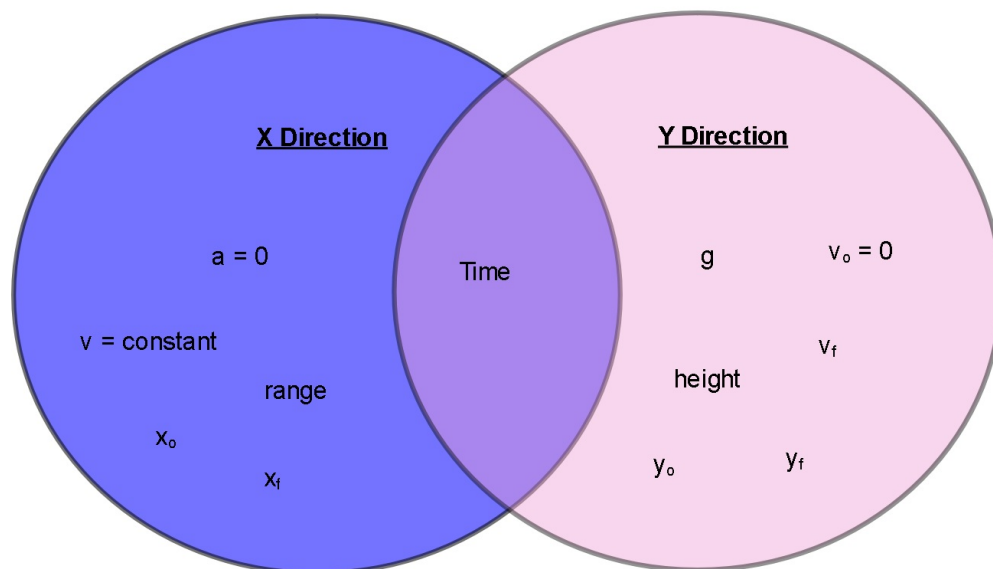
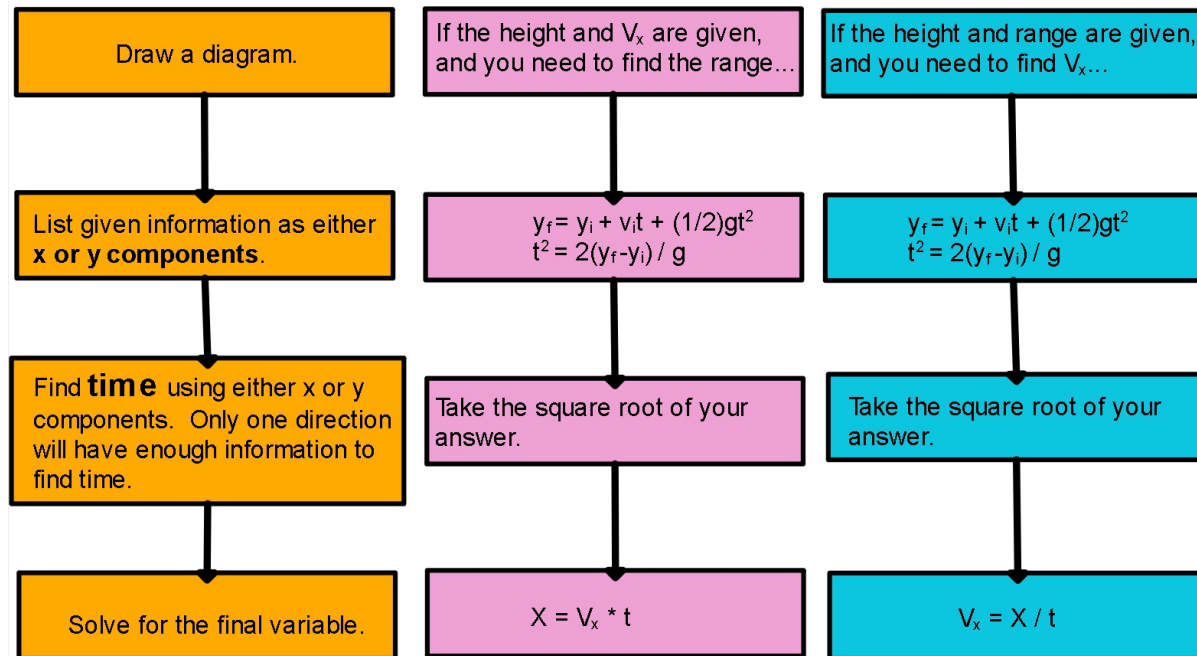


# *2-Dimensional Motion*

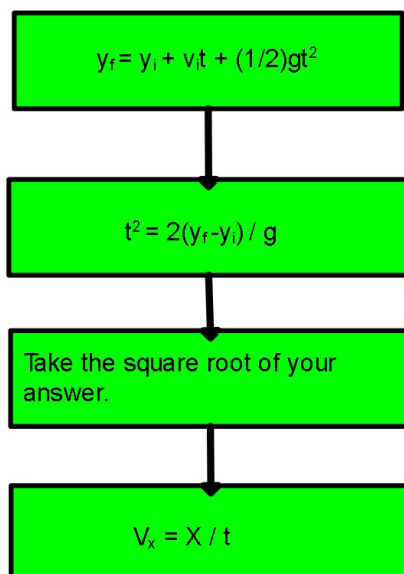


For an object launched **horizontally** from some height...

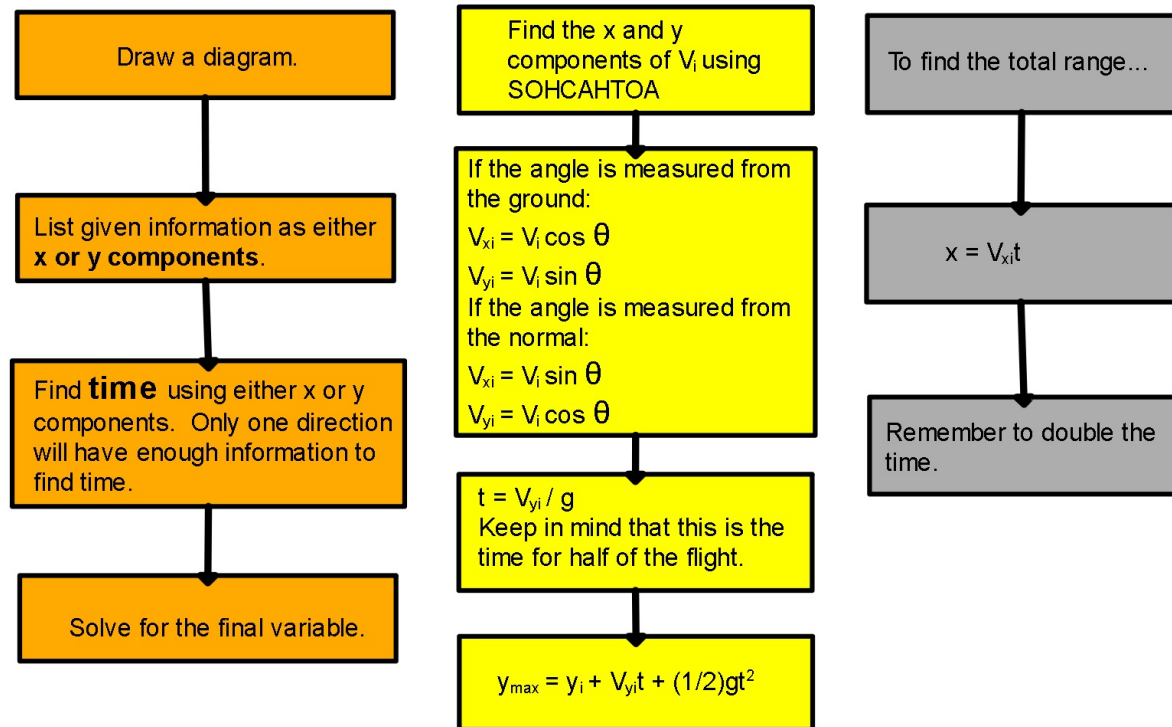


For an object launched **horizontally** from some height...

A ball is thrown horizontally from the top of a 20.00-m cliff. The ball lands at a distance of 50.00 m from the edge of the cliff. What is the initial horizontal velocity of the ball?

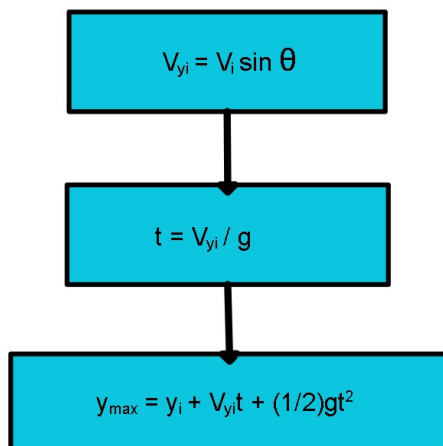


For an object launched at an angle from the ground...

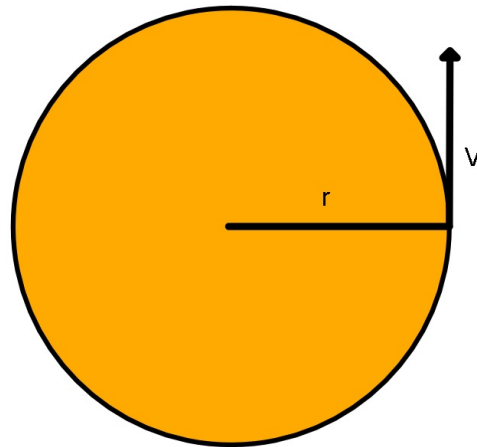


For an object launched at an angle from the ground...

A player kicks a football at an angle of  $42.0^\circ$  above the horizontal. The football has an initial velocity of  $10.0 \text{ m/s}$ . Find the horizontal component of the velocity and the maximum height attained by the football.



## Centripetal Motion



$$a_c = v^2 / r$$
$$F_{\text{net}} = m * a_c$$

## Centripetal Motion

A 0.50-kg ball is attached to a string of 0.50 m and swung in a horizontal circle with a velocity of 1.0 m/s. Find the centripetal force of the ball.

$$a_c = v^2 / r$$

$$F_{\text{net}} = m * a_c$$