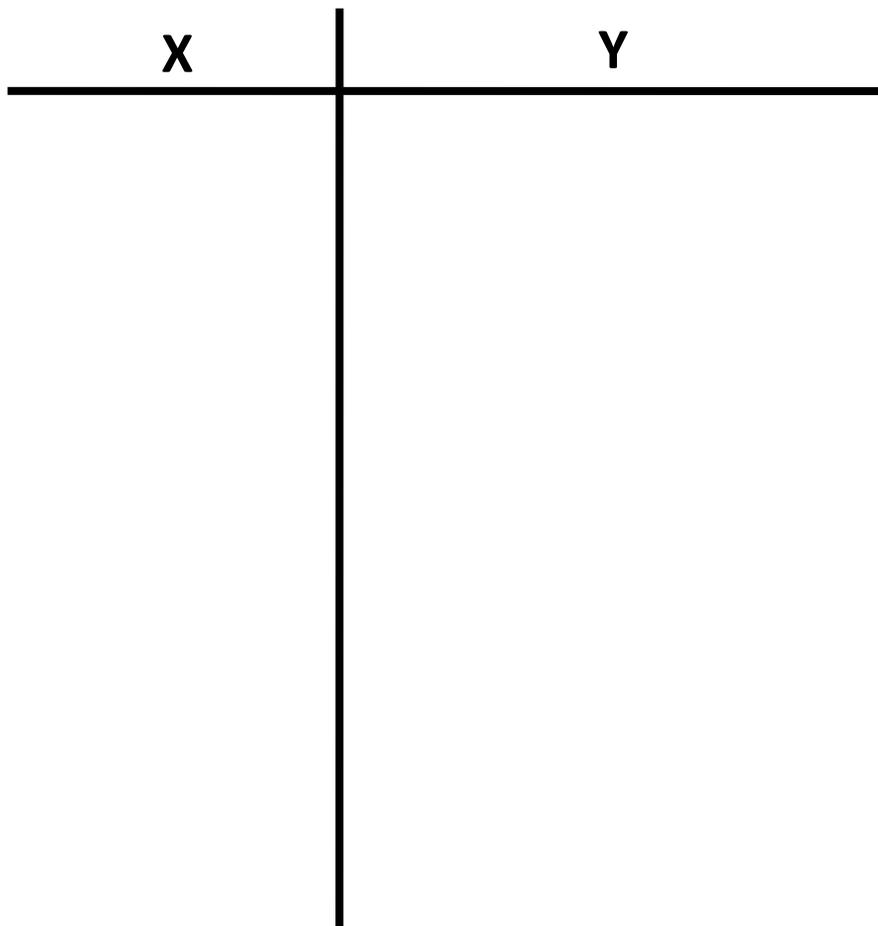
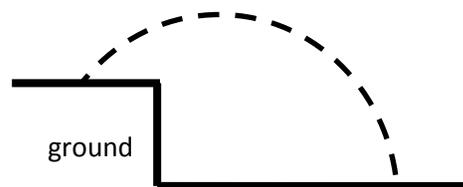
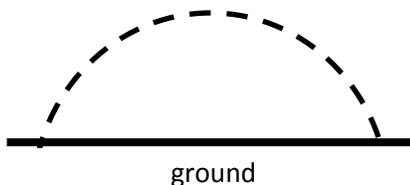
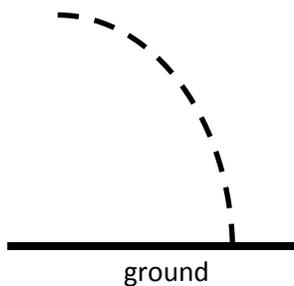


Unit 2 Worksheet 6: Some Extra Projectile Problems

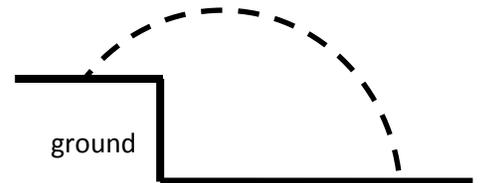
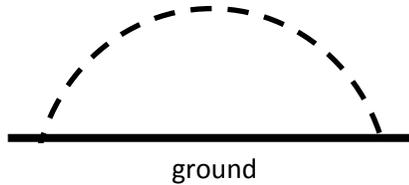
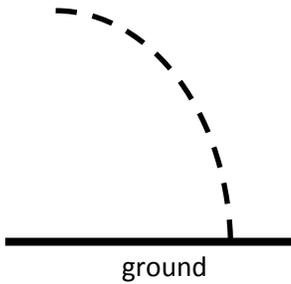
- 1) A flying saucer is cruising horizontally across the night sky at a nice slow speed of 680 m/s (mach 2) when the little green aliens decide to return Morgan Schoonmaker, abducted in 2004, because she is driving them crazy
- A) Circle the choices below that show the general path Morgan takes and label that choice with any velocities, both x and y, that you know. If the cow is released from the alien vessel from a height of 2 miles (1 mile = 1.609 km), B) how far horizontally does Morgan travel before it lands? C) How fast (not just the vertical velocity) is it moving the instant before it lands? D) If the flying saucer slowed down, how would the time in the air and the Δx change?



If needed, draw the initial velocity vector if it is launched at an angle and show the work in this box to find the v_x and v_{y0}

D) _____

- 2) Trevor Rowe, after finally getting a date to home coming (he only asked about 15 girls), was so happy that he threw his cell phone, mass of 85 g, as hard as he could. The phone was moving at a velocity of 2 m/s when it left his hand and at an angle of 40° above the horizontal. A) Circle the choices below that show the general path the phone takes and label that choice with any velocities, both x and y, that you know. B) If Trevor releases the phone from a height of 1.5 m above the ground, what is the maximum height the phone reaches? C) What is the range of the phone?



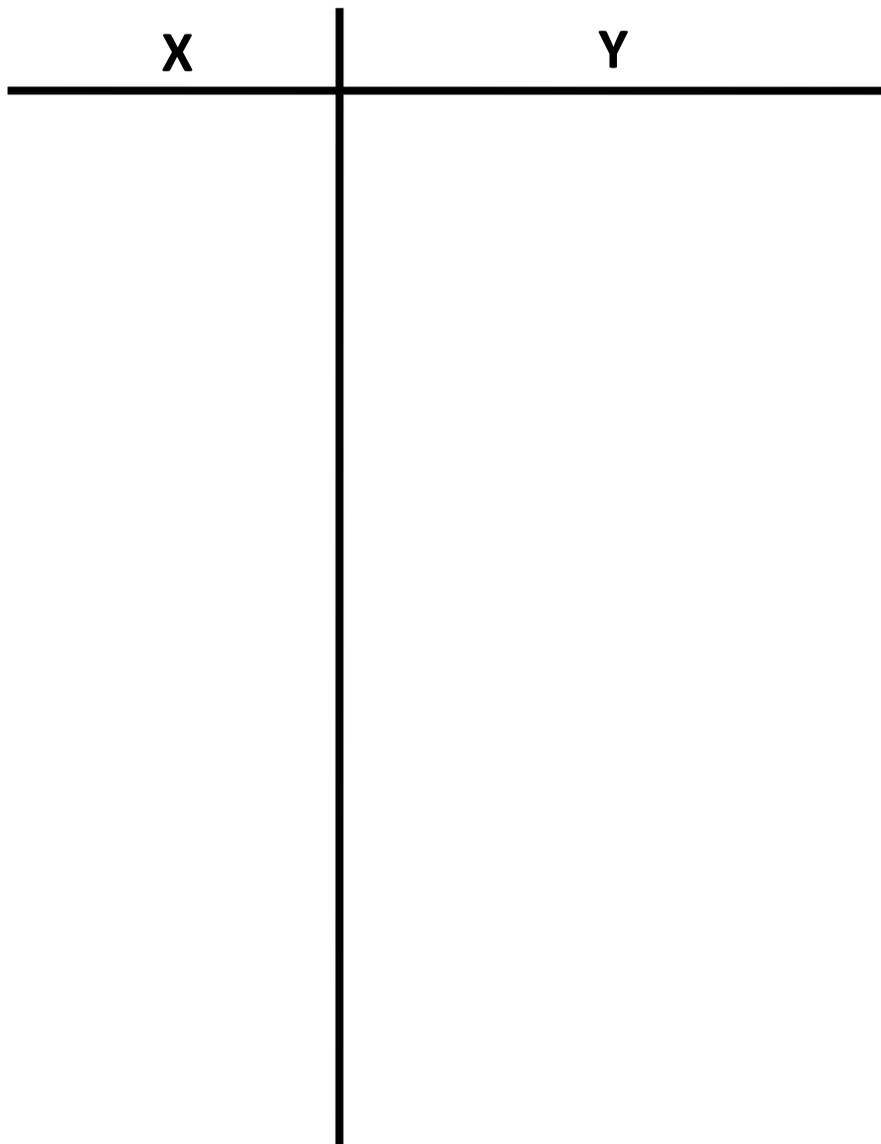
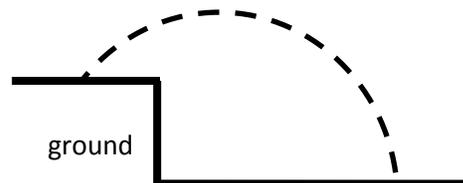
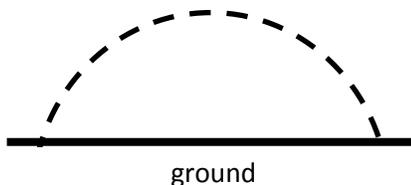
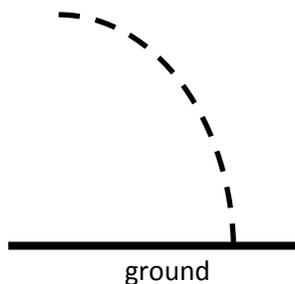
X

Y

If needed, draw the initial velocity vector if it is launched at an angle and show the work in this box to find the v_x and v_{y0}

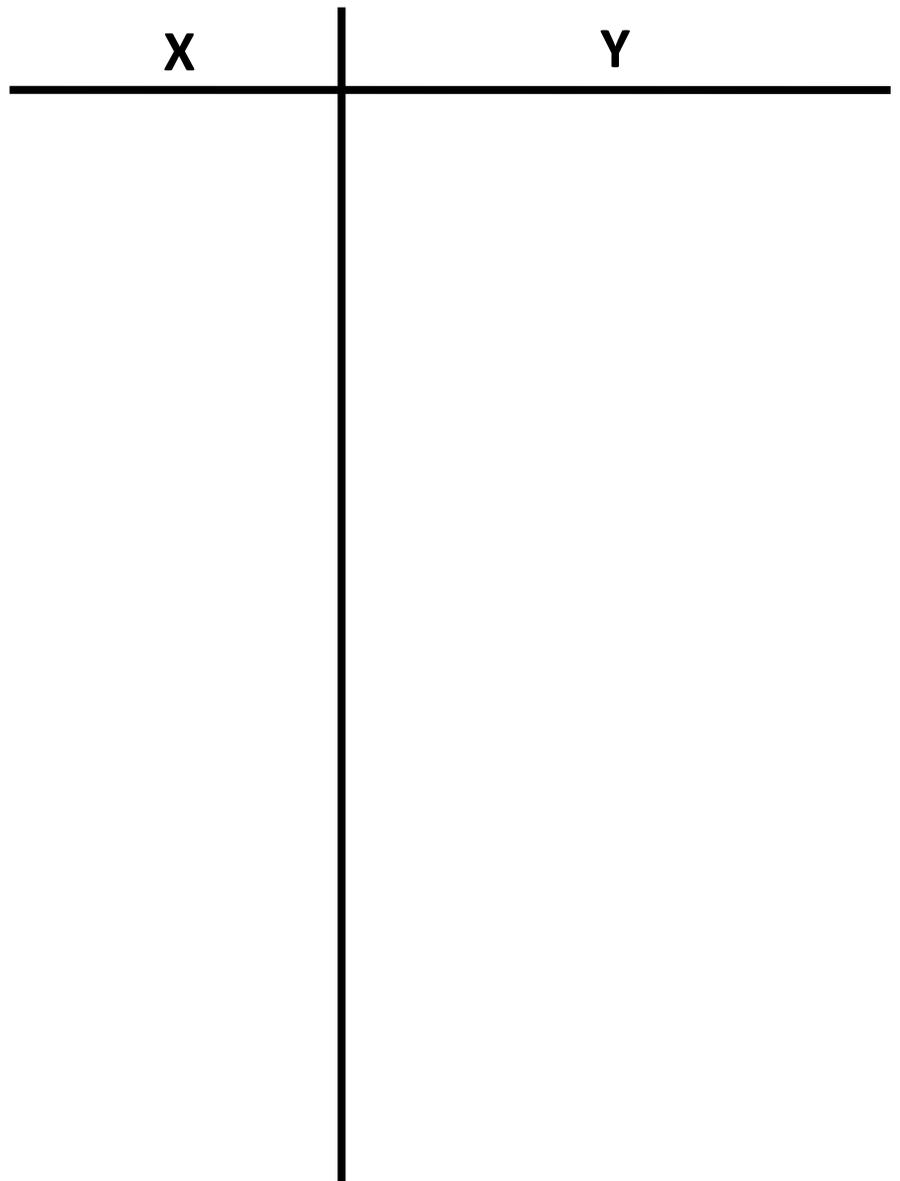
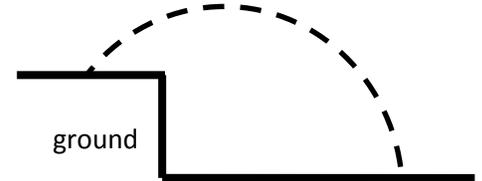
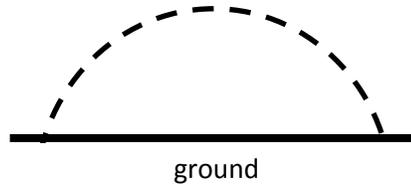
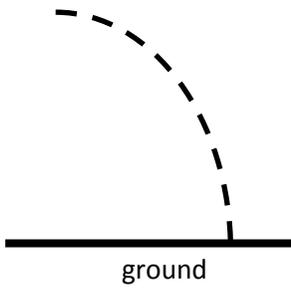
3) The super smart sophomores twins (Tom & Joe Ernst decided they want to test a real world projectile problem. The 2 climb up the E building on the roof with a huge protractor and decide to throw something off at an angle of 40° . They forget to bring up something to throw so Joe quickly grabs Tom and tosses him!

A) Circle the choices below that show the general path Tom takes and label that choice with any velocities, both x and y, that you initially know. B) If Joe measured the height of the E building to be 8.5 m and the time in the air to be 3.2 s, how fast was Tom thrown? C) How far away from the E building wall did Tom land?



If needed, draw the initial velocity vector if it is launched at an angle and show the work in this box to find the v_x and v_{y0}

- 4) Dexter Horvath and Tori Manhardt dress up as Jay-Z and Beyonce for Halloween and go out looking for candy. When they bust out their rap asking for candy everyone keeps laughing at them. Dexter finally gets so mad he kicks a pumpkin. At the pumpkin's maximum height, the pumpkin ends up hitting Tori in the head and Tori is 5' 3", even though she looks taller (1 inch is 2.54 cm). A) Circle the choices below that show the general path the pumpkin takes and label that choice with any velocities, both x and y, that you know. B) If the pumpkin is kicked at an angle of 60° above the horizontal, how far away is Beyon. . . Tori from Dexter? C) If Tori remained at the same horizontal position, but ducked so she was only 3' tall, how hard would Dexter need to kick the pumpkin to hit her again?



If needed, draw the initial velocity vector if it is launched at an angle and show the work in this box to find the v_x and v_{y0}