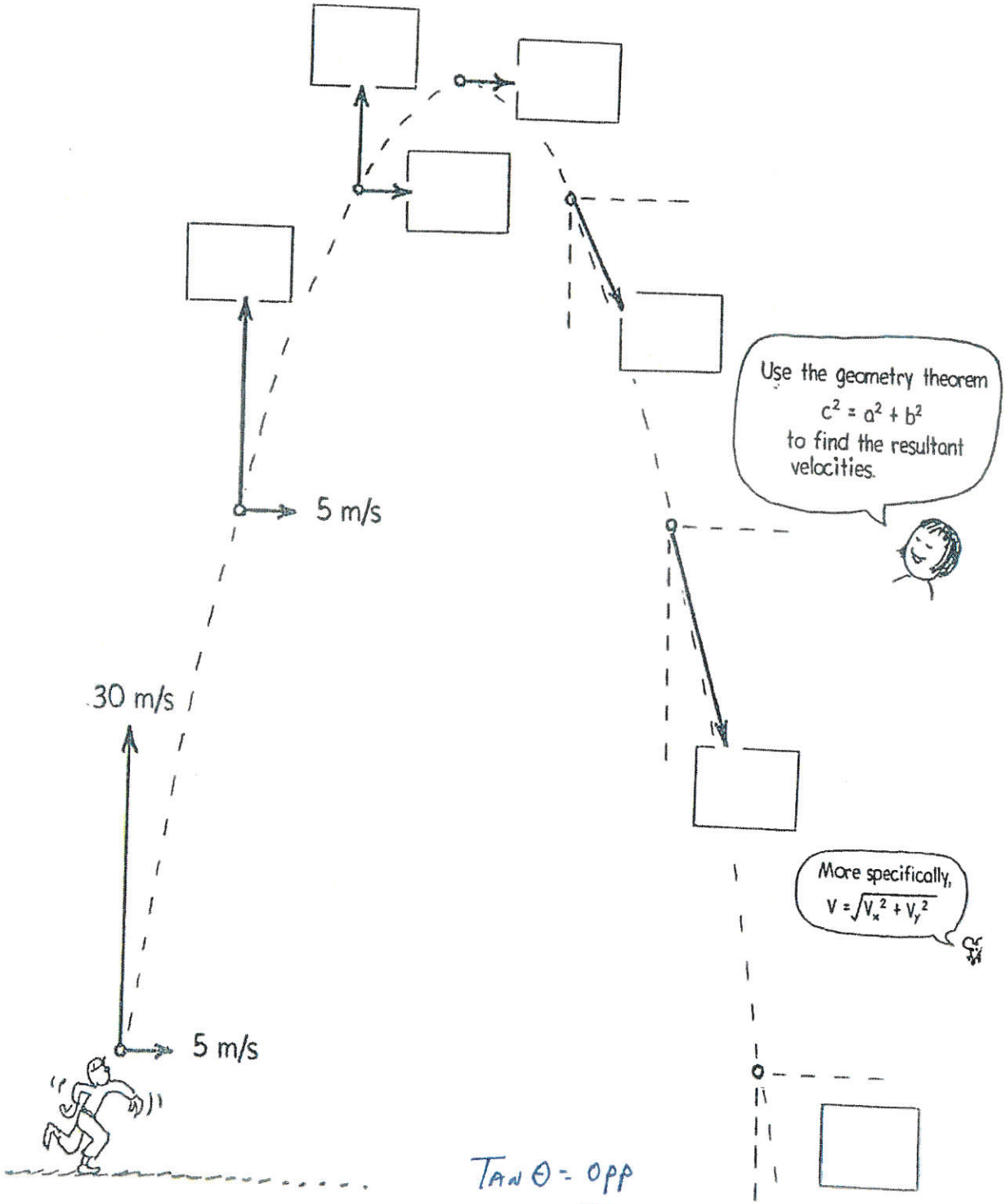
227 Ball Toss Diagram

Dr. Dsick

Tossed Ball

A ball tossed upward has initial velocity components 30 m/s vertical, and 5 m/s horizontal. The position of the ball is shown at 1-second intervals. Air resistance is negligible, and $g = 10$ m/s². Fill in the boxes, writing in the values of velocity ***components*** ascending, and your calculated ***resultant velocities*** descending.



TAN θ = OPP / ADJ

2nd TAN

TAN⁻¹ (OPP / ADJ) = Angle

MAKE SURE IN Degrees

NAME:_____

227 Tossed Ball Diagram

Dy = distance in the Y direction

V_{oy} = velocity in the Y direction

Dx = Distance in the X direction

V_{ox} = velocity in the X direction

t = Time

g = gravity ($-10 m/s^2$)

L1 =Time

L2 = V_{oy} + -10*L1 (velocity in the vertical direction)

L3 = V_{oy}*L1 + 0.5*-10*Li^2 (distance in the Y direction)

L4 = V_{ox} (velocity in the X direction)

L5 =L1*L4 (distance in the X direction)

Graph:

XList = L5

YList = L3

Quadreg L5 vs L3

NAME:_____

SHOW ALL LISTING EQUATIONS

Time	Vy	Dy	Vx	Dx
L1= time	L2=	L3 =	L4 =	L5=

6. What is the speed of the ball in the Y direction at the top of the arch?

7. What is its acceleration in the Y direction at the top of the arch?

8. What is its speed in the X direction at the top of the arch?

9. How far is the ball in the X-direction from the man, when it ends the arch?

10. How high does the ball travel in the Y direction?

11. What is its acceleration in the X direction at the top of the arch?

12. What is the angle of the throw (show your work)?

13. What was the resultant velocity of the throw (show your work)?