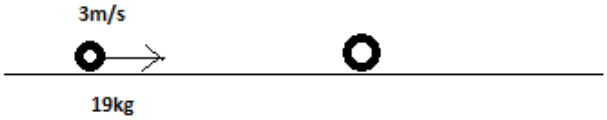
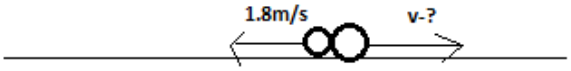
Your 19.0 kg curling stone travels at 3.0 m/s[N] towards an opponents stone at rest.The stones strike and your stone rolls off to the side with a velocity of 1.8 m/s[N22W]. The opponents stone moves in a northeasterly direction. What is the final velocity of the opponents stone





By the low of saving energies:

$$\frac{19*3^2}{2} = \frac{19*1.8^2}{2} + \frac{m*v^2}{2}$$

Where m-mass of opponents stone, v –speed

By low of saving impulses:

19*3=1.8*19+mv

From here m=22.8/v

$$\frac{19*3^2}{2} = \frac{19*1.8^2}{2} + \frac{22.8/v*v^2}{2}$$

V=19(9-1.8*1.8)/22.8=4.8 m/s