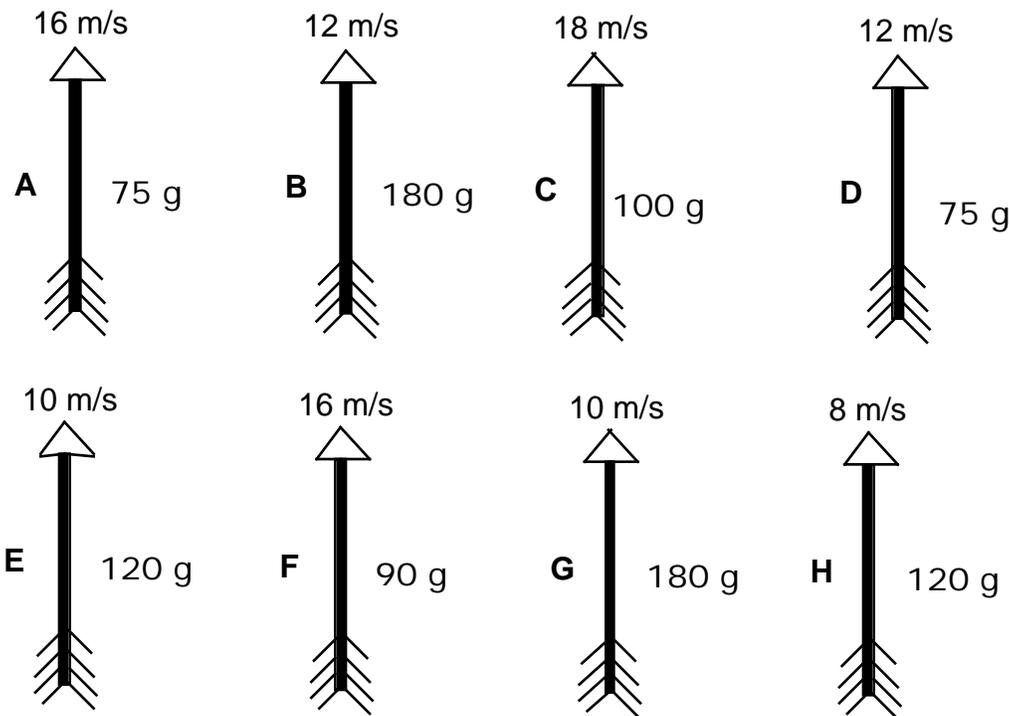


Vertical Arrows—Maximum Height ⁷

The eight figures below show arrows that have been shot into the air. All of the arrows were shot straight up and are the same size and shape. But the arrows are made of different materials so they have different masses, and they have different speeds as they leave the bows. The values for each arrow are given in the figures. (We assume for this situation that the effect of air resistance can be neglected.) All start from same height.

Rank these arrows, from greatest to least, on the basis of the maximum heights the arrows reach.



Highest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ Lowest

Or, all the arrows reach the same height. _____

Please carefully explain your reasoning.

How sure were you of your ranking? (circle one)

Basically Guessed

Sure

Very Sure

1

2

3

4

5

6

7

8

9

10

⁷ T. O’Kuma