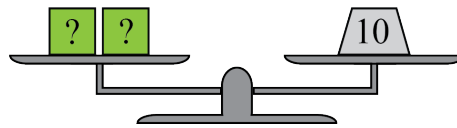# Problem of the Week
Problem B
A Balancing Act

If a scale is balanced, then the total mass on each side of the scale is the same. Consider the following balanced scale, where the number on an object represents its mass, in grams, and two identical objects with question marks on them have the same unknown mass.

Since the right side has a mass of 10 g, it follows that the two squares must also have a total mass of 10 g. Since the square objects are identical, they must each have a mass of $10 \div 2 = 5$ g.

(a) Find the mass of the indicated shape for each of the three balanced scales.

(i)

(ii)

(iii)
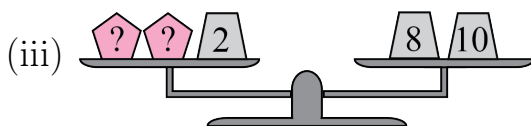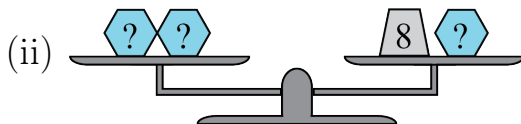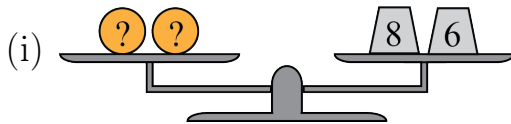
(b) Using the same idea as in part (a), determine the mass of each symbol in the balanced scales shown. Note that here, the information from the previous scale is used in solving the next one.