Problem of the Week
Problem D
Go for the Gold

For orientation days at the University of Waterloo, various activities are available for incoming students to participate in. One activity is a simple game in which students reach into a box and randomly select a golf ball. The golf balls are all identical in size and are either black or gold. If a student selects a gold golf ball, then they win a prize. After a golf ball is selected, it is returned to the box.

Initially, the box contained 300 gold golf balls and students had a 1 in 5 chance of selecting a gold golf ball. The organizers want to increase the chances of selecting a gold golf ball to 3 in 10. In order to do this, they add complete packages of golf balls. Each package of golf balls contains 60 golf balls, of which 65% are black.

How many full packages of golf balls must be added to the box?