

5. Your friend starts a small company which sells awesome t-shirts for \$10 apiece. The table below shows the cost of making different numbers of shirts:

$q$ (number of shirts made)	5	10	15	20	25	30	35	40	45	50
$C(q)$ (cost, in \$)	100	130	150	168	184	196	206	218	236	256

- (a) (2 points) Write an expression for the revenue function  $R(q)$ .
- (b) (4 points) How many shirts should your friend aim to sell, if her goal is to maximize profit? Explain.
6. (6 points) The radius of a spherical balloon is increasing by 3 cm per second. At what rate is air being blown into the balloon at the moment when the radius is 9 cm? Make sure you include units! [Hint: the volume of a sphere of radius  $r$  is  $\frac{4}{3}\pi r^3$ .]