27 Suppose that the total revenue is $R(x)=50x$ and the total cost is $C(x)=1900+30x+0.01x^2$

a) Find the profit from the production and sale of 500 units

$$P(x)=R(x)-C(x)$$
$$=50x-1900-30x-0.01x^2$$
$$=20x-0.01x^2-1900$$

at $x=500$

$$P(500)=20(500)-0.01(500)^2-1900$$
$$=5600 \$$$

b) Find the marginal profit.

$$MP=P'(x)=20-0.01(2)x$$
$$=20-0.02x$$

c) Find MP at $x=500$ and explain what it predicts.

$$MP(50)=P'(50)=20-0.02(500)$$
$$=20-10$$
$=10$ the profit will increase by about \$10 if a 501st unit is sold

9.2