



To find E, first find  $y = mx + b$  for  $\overline{BC}$

$B(45, 90)$   $C(135, 30)$   
 $x_1 \ y_1 \ x_2 \ y_2$   
 $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{30 - 90}{135 - 45} = -\frac{2}{3}$   
 $y = -\frac{2}{3}x + 120$   
 $y = -\frac{2}{3}x + b$  (sub in a point (45, 90))  
 $90 = -\frac{2}{3}(45) + b$   
 $90 + \frac{2}{3}(45) = b$   
 $b = 120$

①  $x + y = 150$   
 ②  $y = -\frac{2}{3}x + 120$

$3 \times \frac{2x}{3} + (-\frac{2}{3}x + 120) = 150$

$\cancel{3} \times (\frac{1}{3}x) = 30 \times 3$   
 $x = 90$

sub  $x = 90$  ①  
 $90 + y = 150$   
 $y = 60$

$E(90, 60)$   
 ↳ does this give us a higher profit than B?

$P = 50x + 95y$   
 $P = 50(90) + 95(60)$   
 $P = \$10200$

To find F use  $x + y = 150$  and equation for  $\overline{CD}$  (horizontal)  
 $y = 30$

$x + y = 150$   
 $y = 30$

$x + 30 = 150$   
 $x = 120$

$F(120, 30)$   
 ↳ higher profit than B?  
 $P = 50(120) + 95(30)$   
 $P = \$8850$

∴ the environment constraint will not affect our ability to optimize our profit by selling 45 tents spot and 90 motorhome spot

he buys the coats for \$25  
he sells the coats for \$45  
∴ he makes a profit of \$20 off  
the coats

bae / bb / styfe