

VIDEO NOTES: Solving Systems of Equations with Two Equations and Two Unknowns

The PGA tour is coming to Benton Harbor in 2012 and 2014. The staff needs to start buying supplies for its volunteers. In 2012, they expect to have \$3990 to spend on bottled water that cost \$.34 per bottle and t-shirts that cost \$1.98 each. In 2014, they expect to have \$5865 to spend on bottled water that cost \$.73 per bottle and t-shirts that cost \$2.45 each. How many bottles of water and how many t-shirts will the PGA need each year?

x = number of bottles of water needed each year

y = number of t-shirts needed each year

Addition/Elimination Method

$$\begin{cases} .34x + 1.98y = 3990 \\ .73x + 2.45y = 5865 \end{cases}$$

$$\begin{cases} .73(.34x + 1.98y = 3990) \\ -.34(.73x + 2.45y = 5865) \end{cases}$$

$$\begin{cases} .2482x + 1.4454y = 2912.7 \\ -2.482x - .833y = -1994.1 \end{cases}$$

$$\begin{cases} .2482x + 1.4454y = 2912.7 \\ -2.482x - .833y = -1994.1 \end{cases}$$

$$6124y = 918.6$$

$$y = 1500$$

$$.34x + 1.98(1500) = 3990$$

$$.34x + 2970 = 3990$$

$$.34x = 1020$$

$$x = 3000$$

3000 bottles of water and 1500 t-shirts are needed