HOW TO SHOW YOUR WORK:

[b]   The cost per person for a pizza lunch varies directly as the number of pizzas purchased and inversely as the number of people. If 10 pizzas are bought for 25 people and the cost per person is $7, what is the cost per person if 18 pizzas are bought for 40 people ?

Identify your variables: Let   z = number of pizzas

p = number of people

c = cost per person

Set up the generic equation: $c = \dfrac{kz}{p}$

Substitute values to find k: $7 = \dfrac{k(10)}{25}$

Solve for k: $175 = 10k$

$k = \dfrac{35}{2}$

Set up the specific equation: $c = \dfrac{35}{2}\dfrac{z}{p}$ or $\dfrac{35z}{2p}$

Substitute new values: $c = \dfrac{35(18)}{2(40)}$

Solve for the unknown: $c = 7.875$

Summarize in a sentence: If 18 pizzas are bought for 40 people, the cost per person is $7.875 or $7.88.