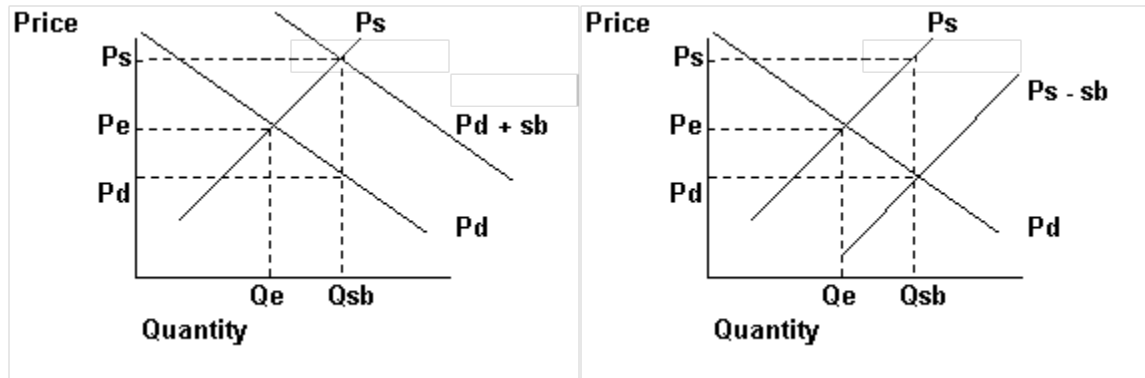**17. Correct. The answer is false.** The incidence of unit subsidy can be shown by adding the subsidy to the inverse demand equation or by subtracting the subsidy from the inverse supply equation.

What the supplier receives, Ps, is equal to what the demander pays Pd plus the unit subsidy sb. Thus, $Ps = Pd + sb$. Alternatively, you can rearrange the expression to $Pd = Ps - sb$ or you can analyze the subsidy by subtracting it from the supply price as shown in the figure to the right below. Again the results are the same and supply price goes up and demand price goes down.

To find out the incidence of the subsidy, you need to find out the price before and compare it to the price demanders pay and the price suppliers receive after the subsidy. First, solve for initial equilibrium by setting demand price equal to supply price.

$$Pd = 100 - 2Q = Ps = 20 + 3Q => 5Q = 80 => Q = 16.$$

Price at a quantity of 16 can be solved from either the demand or supply equation.

$$Pd = 100 - 2*16 = 68, \text{ or}$$

$$Ps = 20 + 3*16 = 68.$$

You can solve for quantity after the subsidy by adding the subsidy to the demand price and setting equal to the supply price.

$$Pd + sb = 100 - 2Q + 5 = Ps = 20 + 3Q => 5Q = 85 => Q = 17.$$

Then the demand price is

$$Pd = 100 - 2*17 = \$66$$

And the supply price is

$$Ps = Pd + sb = \$66 + 5 = \$71 \text{ or } Ps = 20 + 3Q = 20 + 3*17 = \$71.$$

The demander pays a lower price than before $66 rather than $68 and receives $68 - $66 = $2 of the subsidy. The supplier receives a higher price than before $71 rather than $68 and receives $71 - $68 = $3 of the subsidy.

The government pays out subsidy on each unit times total units sb*Q = 5*17 = $85.