Mostly True/False; you should be able to provide an explanation of why a false statement is false. An answer of “False” would be marked wrong on an exam if no explanation were provided, or if the explanation was wrong.

_____1. The circular flow diagram would classify the Pittsburgh Symphony as a firm.
   True – they produce a service, and sell it in the goods and services market.
   (Non-profits can be firms too)

_____2. In the circular flow diagram, factors of production are traded in the product market.
   False - they are traded in factor markets.

_____3. Labor is demanded by firms in a factor market.
   True.

_____4. A fall in the price of iPads would shift the demand curve for iPads to the right.
   False – there would be a movement along the demand curve.
   Only a change in something other than the price of the good itself shifts a curve.

_____5. As the price of a product falls, the quantity demanded of that product will increase, other things equal.
   True – this simply states the law of demand.

_____6. According to the law of demand, there is a positive relation between price and the quantity demanded.
   False – the relation is negative or inverse.

_____7. If the demand for potatoes increases as income decreases, economists would consider potatoes as an _____ good.
   Inferior.

_____8. If the demand for eggs decreases as the price of bacon increases, economists would consider eggs and bacon as _____.
   Complements

_____9. Economists consider income a “stock” measure, and wealth a “flow” measure.
   False – income is the monthly flow, savings from which result in a stock of wealth.

_____10. An increase in income will increase the demand for all goods.
   False – it will increase the demand for normal goods, but decrease the demand for inferior goods.

_____11. A supply curve shows the minimum price producers are willing to charge.
   True

_____12. The supply curve will shift upwards on a graph if the prices of inputs into production go up.
   True – if the price of inputs goes up, producers will require a higher minimum price at any given quantity.
13. A demand curve can be written in general terms as

\[ Qd = 0.1 \times \text{Income} - 20 \times P \]

Draw a graph for the demand curves at Income = $10,000 and at Income = $30,000. Be sure to have the axes labeled and also indicate the points at which the demand curves cross the vertical and horizontal axes.

**The demand curve at $10,000 will be**

\[ Qd = 1000 - 20P \]

or

\[ P = 50 - \frac{1}{20} Qd \]

It will run from 50 on the vertical price axis to 1000 on the horizontal quantity axis.

**The demand curve at $30,000 will be**

\[ Qd = 3000 - 20P \]

or

\[ P = 150 - \frac{1}{20} Qd \]

It will run from 150 on the vertical price axis to 3000 on the horizontal quantity axis.

14. If income were $10,000, and if the supply curve were \( Qs = 30P \), the equilibrium price would be $20. (show calculations below)

\[ Qd = Qs \quad \text{(Equilibrium condition)} \]

\[ 1000 - 20P^* = 30P^* \]

\[ 50P^* = 1000 \]

\[ P^* = \$20 \]

**Note:** the star on the price denotes the equilibrium price.

15. If income were $10,000 and if the supply curve were \( Qs = 30P \), the equilibrium quantity would be 600. (show calculations below).

Substitute the equilibrium price of 20 into either the demand or supply equation.

\[ Qd^* = 1000 - 20(20) = 600 \]

\[ Qs^* = 30(20) = 600 \]

16. If income were $30,000, and if the supply curve were \( Qs = 20P \), the equilibrium price would be $75. (show calculations below)

\[ Qd = Qs \quad \text{(Equilibrium condition)} \]

\[ 3000 - 20P^* = 20P^* \]

\[ 40P^* = 3000 \]

\[ P^* = \$75 \]

17. If income were $30,000 and if the supply curve were \( Qs = 20P \), the equilibrium quantity would be 1500. (show calculations below).

Substitute \( P^* = 75 \) into the supply equation to get \( Qs^* = 20 \times 75 = 1500 \)

Substitute \( P^* = 75 \) into the demand equation to get \( Qd^* = 3000 - 20 \times 75 = 3000 - 1500 = 1500 \)
18. Illustrate the situation in questions 14-17 by a graph, with the questions 14-15 situation shown as a solid line (below, in RED) and the questions 16-17 situation shown in BLUE lines.

![Graph of Supply and Demand Shifts](image)

19. As a result of the changes in questions 14-18, the equilibrium price increases. (T/F)
   True, from $20 to $75

20. As a result of the changes in questions 14-18, the equilibrium quantity increases. (T/F)
   True, from 600 to 1500

21. The change from questions 14-15 to 16-17 can be described as an increase in supply combined with a decrease in demand. (T/F)
   False – demand increases and supply decreases.

22. Whenever supply decreases and demand increases, both price and quantity necessarily increase. (T/F, and explain carefully)
   Price and quantity both increased in this case, but in general, price will go up but quantity be uncertain.

23. The good described in questions 14-18 is an inferior good. (T/F and explain)
   False – when income increases, demand for the good increases, so it is a normal good.