Econ 105 – Answers to Quiz 1 Questions

Question number one

(1) The price intercept is 200 and the quantity intercept is 40. The equation for the line is \( P = 200 - 5q \).
(2) Demand curve
(3) The slope of the line is negative so the relationship between price and quantity is inverse.
(4) The slope is -5.
(5) Solve the equation \( 150 = 200 - 5q \). \( q = 10 \).
(6) Solve the equation \( 100 = 5q \). \( q = 20 \).
(7) \(-40/200 = -0.2\)
(8) Solve the equation \( p = 200 - 5(10) \). \( P = 150 \)
(9) Solve the equation \( p = 200 - 5(15) \). \( P = 125 \)
(10) \(-25/5 = -5\)

Question number two

(1) The intercept is 0 and the slope is 15.
(2) Supply curve
(3) The slope of the line is positive so the relationship between price and quantity is direct.
(4) The slope is 15.

Question number three

(1) Solve the equation \( 200 - 5q = 15q \), \( q = 10 \) so \( p = 15(10) = 150 \)
(2) \( Q = 10 \)
(3) \( TR = pq = 150(10) = 1500 \)
(4) \( AR = TR/q = 1500/10 = 150 \)
(5) The change in revenue when \( q = 9 \) to \( q = 10 \) is 105.
(6) The total cost is \( .5(150)(10) = 750 \)
(7) The average cost is \$75.\)
(8) The consumer surplus is \( .5(50)(10) = 250 \)

Question number four

(1) Since the intercepts shift from 200 to 400 and from 40 to 80 this is an increase in demand. It is also an increase in the quantity supplied.
(2) Solve the equation \( 400 - 5q = 15q \), \( q = 20 \) so \( p = 300 \).
(3) \( TR = (20)(300) = 6000 \)
(4) \( TC = .5(20)(300) = 3000 \)
(5) The profit is \( TR - TC = 3000 \)
(6) The consumer surplus is \( .5(100)(20) = 1000 \)
(7) A. Solve the equation \( 180 = 15q \), \( 3 = 12 \)
B. Solve the equation \( 180 = 400 - 5q \), \( q = 44 \)
C. 44 is greater than 12 so there is excess demand
D. \( 44 - 12 = 32 \).
E. The price will be 340 if the quantity supplied is 12. So the CS is \( .5(60)(12) = 360 \)
F. Profit = \( .5(180)(12) = 1080. \)