Answers to Questions for Review

19.1 (a) Autonomous spending is 10 plus 20, that is 30.

(b) \( C = 10 + 0.9Y \), so \( MPC_Y = 0.9 \); \( E = 30 + 0.9Y \), so \( MPE_Y = 0.9 \); \( S = -10 + 0.1Y \), so \( MPS_Y = 0.1 \); and \( W = S \), so \( MPW_Y = 0.1 \).

(c) If \( Y = 30 + 0.9Y \), then subtracting 0.9 \( Y \) from each side gives 0.1 \( Y = 30 \), so \( Y = 300 \).

(d) \( J = 20 \) at every level of \( Y \). \( W \) equal saving, so \( W = -10 + 0.1Y \). So if \( Y = 300 \), \( W = -10 + 30 \), or 20.

(e) One formula is \( 1/(1-MPE_Y) \) which is \( 1/(1-0.9) \), that is 1/0.1 or 10. The other formula is \( 1/MPW_Y \) which is 1/0.1 or 10.

(f) With the multiplier equal to 10, a fall of 10 in autonomous spending leads to a fall in output of 100.

(g) Now \( C = 10 + 0.8Y \) so \( E = 30 + 0.8Y \). At equilibrium, \( Y = E \), so \( Y = 30 + 0.8Y \), so 0.2 \( Y = 30 \) and \( Y = 150 \). The multiplier, \( 1/(1-MPE_Y) \), is now or 1/0.2, that is 5.

19.2 (a) As \( E = 100 + 0.6Y \), autonomous spending equals 100.

(b) \( MPC_Y = 0.7 \), \( MPE_Y = 0.6 \), and \( MPW_Y = 0.4 \). (Note that \( MPC_Y \) refers to consumer spending at factor cost, not consumer spending at market prices, and this is why it equals 0.7 rather than 0.8.)

(c) If \( Y = 100 + 0.6Y \), then 0.4 \( Y = 100 \) and \( Y = 250 \).

(d) \( J = 90 \) at every level of \( Y \). \( W = -10 + 0.4Y \), so if \( Y = 250 \), \( W = -10 + 100 \) which is 90.

(e) One formula is \( 1/(1-MPE_Y) \) which is \( 1/(1-0.6) \), that is 1/0.4 or 2.5. The other formula is \( 1/MPW_Y \) which is 1/0.4 or 2.5.
(f) With the multiplier equal to 2.5, a rise of 20 in autonomous spending leads to a rise in output of 50.

(g) $E$ now equals $110 + 0.5Y$. So if $Y = E$, $Y = 110 + 0.5Y$, so $0.5Y = 110$ and $Y = 220$. 