Macro Quiz

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1) Bonus of $5000 spent $2000

$MPC = \frac{2000}{5000} = \frac{2}{5} = 0.4$

2) $r = i - \pi \quad i = 3\% \quad \pi = -2\%$

$r = 3 - (-2)$

$r = 5\%$

3) $i = 3\% \quad \pi^e = -2\% \quad t = 20\%$

$r_{a-t} = (1 - 0.2)3 - (-2)$

$= (.8)3 + 2$

$= 4.4\%$

4) $P_K = \$500 \quad d = 25\% \quad i = 6\% \quad \pi = 5\% \quad r = i - \pi$

$r = 1\%$

$uc = (r + d)P_K$

$uc = (0.01 + 0.25)500$

$uc = \$130$

5) $V = \$5 \text{ million} \quad K = 1000 \quad P_K = \$4000$

$q = \frac{V}{P_K \cdot K}$

$= \frac{5,000,000}{(1000)(4000)}$

$= 1.25$

The firm should invest because $q > 1$ which means $V > P_K K$

6) $PV = 100,000 \quad i = 5\% \quad n = 15$

$FV = PV(1 + i)^n$

$= 100,000\,(1 + 0.05)^{15}$

$= \$207,892.82$

7) $FV = 5,250,000$ $i = 4\%$ $n = 30$

$PV = \frac{FV}{(1+i)^n} = \frac{5,250,000}{(1+0.04)^{30}} = \boxed{\$1,618,673.01}$

8) $p_K = 10,000$ $d = 16\%$ $r = 4\%$ $t = 20\%$

$MPK^f = \frac{(r+d)p_K}{(1-t)} = \frac{(0.04+0.16)10,000}{(1-0.2)} = \boxed{\$2500}$

0	0	> 10000
1	10000	> 15,000
2	25000	> 10,000
3	35000	> 5,000
4	40000	> 2,500
5	42500	
6	44000	

5 machines because that is when $MPK^f = \$2500$

9) $K = \$5,000$ billion $I_t = \$1750$ billion $d = 20\%$

Net Investment $= I_t - dK_t = 1750 - (0.2)(5000)$

$= 1750 - 1000$

$= \boxed{\$750 \text{ billion}}$

10) $K_t = 10$ million $K_{t+1} = 14$ million $d = 40\%$

$K_{t+1} - K_t = I_t - dK_t$

$15 - 10 = I_t - (0.4)(10)$

$5 = I_t - 4$

$\boxed{\$9 \text{ million} = I_t}$

11) $p_K = \$5000$ $d = 25\%$ $i = 5\%$ $\pi = 10\%$ $r = 5 - 10$

$r = -5\%$

$uc = (r+d)p_K = (-0.05+0.25)5000$

$\boxed{= \$1,000}$

12) $C = 140$ $C^f = 220$ $r = 4\%$

$$PVLC = C + \frac{C^f}{1+r}$$

$$= 140 + \frac{220}{1+0.04}$$

$$\boxed{= 351.54}$$

13) $C = 160$ $C^f = 260$ $PVLC = 380$

$$PVLC = C + \frac{C^f}{1+r}$$

$$PVLC - C = \frac{C^f}{1+r}$$

$$1+r = \frac{C^f}{PVLC - C}$$

$$r = \frac{C^f}{PVLC - C} - 1$$

$$\boxed{r = 0.18 = 18\%}$$

Ex (r) $P_K = 1500$ $d = 15\%$ $r = 10\%$

$$MPK = \frac{(r+d)P_K}{1-E} = \frac{(0.1+0.15)1500}{1} = \$375$$

$$MPK = 1000 - 10k$$

$$375 = 1000 - 10k$$

$$-625 = -10k$$

$$62.5 = k \rightarrow \boxed{62 = k}$$