Session 9: Post class test solutions

1. **d. 2.5%.** The payout ratio is 80% (80/100) and the return on equity is 12.5% (100/800). The expected growth rate in earnings per share = (1- Payout ratio) (Return on equity) = (1-.8) (.125) = 2.5%.
2. **a. 3%.** First, compute the non-cash ROE and equity reinvestment rate
   - Non-cash Net Income= 10 -1 = $9
   - Non-cash ROE = (10-1)/ (110-20) = 10%
   - Equity reinvestment rate = (4+2-3)/ 10% = 30%
   - Expected growth rate = 10% (.30) = 3%
3. **b. 8%.** The keys are the reinvestment rate and return on invested capital:
   - ROIC = 50/ (400 +250-150) = 10%
   - Reinvestment Rate = (75-30-5)/50 = 80% (Decrease in WC reduces reinvestment)
   - Expected growth rate = 10% (.80) = 8%
4. **c. 14.51%**. Since the return on capital is changing on existing and new investments, there are two components to the expected growth:
   - Expected growth from new investments = .6*.18 = 10.8%
   - Expected efficiency growth over 5 years = (.18-.15)/.15 = 20%
   - Expected efficiency growth per year= $(1.20)^{1/5}$-1 = 3.71%
   - Expected annual growth = 10.8% + 3.71% = 14.51%
5. **c. 20%**. The key is to estimate the reinvestment each year, based upon the change in revenues and the sales to capital ratio. That reinvestment adds to the invested capital each year:

	Last year	1	2	3	4
Revenues	$100	$200	$320	$450	$600
Operating Margin	-10%	-5%	0%	5%	10%
Operating Income	-$10.00	-$10.00	$0.00	$22.50	$60.00
Reinvestment		$50.00	$60.00	$65.00	$75.00
Invested Capital	$50.00	$100.00	$160.00	$225.00	$300.00
Return on capital	-20%	-10%	0%	10%	20%