LO.a: Calculate and interpret residual income, economic value added, and market value added.

1. Jackson Co. reported annual earnings of $1500. Its current book value of equity is $10,000 and it has a cost of equity of 8%. The company's WACC is 6%. The residual income is *closest* to:
   A. $700.
   B. $900.
   C. $1500.

2. Market value added is:
   A. the difference between market value of a company and its intrinsic value.
   B. the difference between market value of a company and book value of total capital.
   C. NOPAT less dollar WACC.

LO.b: Describe the uses of residual income models.

3. Which of the following is *least likely* a use of residual income models?
   A. To develop budgets for management.
   B. To determine executive compensation.
   C. To test for goodwill impairment.

LO.c: Calculate the intrinsic value of a common stock using the residual income model and compare value recognition in residual income and other present value models.

4. Which of the following statements about residual income models is *most likely* true?
   A. Book value is a small percentage of the stock's overall value in RI models.
   B. Residual income valuation is relatively less sensitive to terminal value compared to other models.
   C. Residual income models use the T-bill offer rate as discount rate.

5. Lara Jones is determining the intrinsic value of Lucky Autos using the residual income models. The book value per share is currently at $10.00 and forecasted EPS for the next two years is $1.50 and $2.00 respectively after which the company will cease to exist. The company is expected to pay a dividend of $0.80 per share in the coming year and a liquidating dividend of $12.70 in year 2. The cost of equity is 9%. The stock's intrinsic value is *closest* to:
   A. $10.5.
   B. $12.6.
   C. $11.4.

LO.d: Explain fundamental determinants of residual income.

6. Which of the following statements about residual income is *most likely* true?
   A. Residual income is positive when ROE is less than the cost of equity.

B. When ROE is equal to cost of equity, assuming constant growth, a company's value of equity is equal to its book value.
C. ROE does not impact residual income.

LO.e: Explain the relation between residual income valuation and the justified price-to-book ratio based on forecasted fundamentals.

7. The required rate of return on equity for Dexter Labs is 8% and its recent ROE is 9%. ROE is expected to persist at the same level for the foreseeable future. Based on this information:
   A. the justified P/B is less than 1.
   B. the justified P/B is equal to 1.
   C. the justified P/B is greater than 1.

LO.f: Calculate and interpret the intrinsic value of a common stock using single-stage (constant-growth) and multistage residual income models.

8. Northern Airways has a current book value of $15 per share. The company's expected long-term ROE is 15% and its cost of equity is 11%. The company maintains a dividend payout ratio of 70% and has constant earnings growth. The intrinsic value of equity is *closest* to:
   A. $24.
   B. $26.
   C. $9.

9. Belma Corp. has a year-end book value per share of $18, and cost of equity of 8%. The company's ROE of 12% is expected to continue for the foreseeable future. Earnings are expected to grow at 10% and the payout ratio will remain at current levels. Belma's residual income per share for the 5^{th} year is *closest* to:
   A. $6.8.
   B. $1.1.
   C. $0.5.

LO.g: Calculate the implied growth rate in residual income, given the market price-to-book ratio and an estimate of the required rate of return on equity.

10. Goodway Comms. has a P/B ratio of 3.5. the company's long-term ROE is 12% and its current book value per share is $10. The cost of equity is 9%. The implied growth rate is:
    A. 7.8%.
    B. 6.5%.
    C. 9.2%.

LO.h: Explain continuing residual income and justify an estimate of continuing residual income at the forecast horizon, given company and industry prospects.

11. Which of the following factors *most likely* explains higher residual income persistence? A company has:
    A. very high accounting accruals.

B. extremely high return on equity.
C. low dividend payout.

LO.i: Compare residual income models to dividend discount and free cash flow models.

12. A difference between valuation derived from residual income models and DCF models can be explained by:
    A. the difference in nature of models.
    B. the difference in underlying assumptions.
    C. the fact that compared to DCF models, value recognition is different in RI models.

LO.j: Explain strengths and weaknesses of residual income models and justify the selection of a residual income model to value a company's common stock.

13. A possible drawback of using a residual income model to value equity is that the:
    A. terminal value forms a small portion of total value.
    B. model cannot be applied when cash flows are volatile.
    C. accounting data can be manipulated by management.

LO.k: Describe accounting issues in applying residual income models.

14. Which of the following items will *not* violate clean surplus accounting?
    A. Changes in market value of instruments classified as available-for-sale.
    B. Foreign currency translation gains flowing directly to retained earnings.
    C. Inventory write downs.

LO.l: Evaluate whether a stock is overvalued, fairly valued, or undervalued based on a residual income model.

15. Jill Jones is valuing two companies, X and Y, using the residual income model. The price and valuation data are as follows:

Company	**X**	**Y**
Market price	$55	$60
Value obtained from RI model	$50	$65

Comparing the intrinsic value (obtained from the RI model) of the companies with their respective market prices, which of the following statements is *most likely* appropriate?
A. X is undervalued and Y is overvalued.
B. X is overvalued and Y is undervalued.
C. X and Y both are undervalued.

Solutions

1. **A** is correct. The equity charge is calculated as 8% x \$10,000 = \$800. RI is therefore 1500 - 800 = \$700. Section 2.

2. **B** is correct. Market value added is the difference between market value of a company and book value of total capital. Section 2.2.

3. **A** is correct. RI models are not used for developing budgets but are used for measuring goodwill impairment and determining managerial remunerations. Sections 2.1, 2.2.

4. **B** is correct. Residual income valuation is less sensitive to terminal value because book value typically forms a significant percentage of the stock's intrinsic value. Section 4.

5. **C** is correct. The calculation is as follows:

Year	**1**	**2**
Beginning BV per share	10	10.7
EPS	1.5	2
Less: Dividend per share	0.8	12.7
Ending BV per share	10.7	0
Per-share equity charge (9%)	0.9	0.96
RI	0.6	1.037
PV of RI	0.55	0.87

The intrinsic value using the residual income model is B_0 + total PV of RI = 10 + 0.55 + 0.87 = \$11.42. Section 3.

6. **B** is correct. Under the residual income model, assuming constant growth, book value and value of equity would be equal when ROE and cost of equity are equal. In this case residual income would be 0 therefore book value would be the intrinsic value of equity. Section 3.2.

7. **C** is correct. As ROE is greater than the cost of equity, residual income is positive and therefore justified P/B ratio is greater than 1, assuming constant growth. Section 3.2.

8. **A** is correct. The growth rate is ROE x retention ratio = 15% x 30% = 4.5%. The present value of future residual income is calculated as $\frac{(0.15-0.11)\times 15}{0.11-0.045} = \$9.23$. The value of equity is therefore \$15 + \$9.23 = \$24.2. Section 3.3.

9. **B** is correct. The residual income in the coming year is estimated as (0.12 - 0.08) x 18 = \$0.72. RI in year 5 = $(RI\ in\ year\ 1) \times (1.1)^4 = \$1.054$. Section 3.3.

10. **A** is correct. The P/B ratio of 3.5 implies a price of 3.5 x 10 = \$35. The implied growth rate can be found as: $r - \frac{BV(ROE-r)}{V-BV}$ = 9% $- \frac{10(12\%-9\%)}{35-10} = 7.8\%$. Section 3.3.

11. **C** is correct. Low dividend payout by a company leads to high RI persistence levels. High return on equity and high accounting accruals tend to be associated with lower persistence levels for RI. Section 3.4.

12. **B** is correct. The three models yield different results when underlying assumptions are different. The nature of models does not impact the difference in output. Recognition of value in RI models is earlier than in DDM but the total present value whether using RI models or expected dividends or expected free cash flow should be consistent. Section 4.

13. **C** is correct. A potential drawback of RI model is that it relies on accounting data which can be manipulated. Option A is not a drawback but a strength of the RI model. Option B is incorrect because RI model can be used when cash flows are unpredictable. Section 4.

14. **C** is correct. Inventory write downs are reported in the income statement therefore do not violate clean surplus accounting. Options A & B will lead to violation of clean surplus accounting, hence are incorrect. Section 5.

15. **B** is correct. X's market price is greater than its intrinsic value hence it is overvalued. Y's market price is less than it is intrinsic value therefore it is undervalued.