Quiz 2

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Name: _____

Circle the **single best answer** for each question. Work independently. You may use a pencil/pen, paper, calculator and the **formula sheet on page 3**; no other notes, books, computers, phones or classmates.

Time allowed: 10 minutes.

1. Which could help explain why a company's market value of equity exceeds its book value of equity?

   A. Book equity always equals the current share price times shares outstanding.
   B. Market value excludes expectations about future profits.
   C. Valuable customer relationships may not be fully reflected in book equity.
   D. A company's book equity includes the market value of every intangible asset.

2. In the class formula, enterprise value equals market capitalization plus debt minus excess cash. What does this measure represent?

   A. The market value of shareholders' claims alone.
   B. The value of the operating business available to debt and equity investors.
   C. The book value of the company's equity.
   D. The cash available for an immediate dividend.

3. Two firms have the same return on equity (ROE). According to the DuPont identity, what can you conclude?

   A. They must have the same net profit margin.
   B. They must have the same asset turnover.
   C. They must use the same amount of financial leverage.
   D. Different combinations of profitability, efficiency and leverage can produce that ROE.

4. Why can a profitable company have little free cash flow?

   A. Capital expenditures and investment in working capital can absorb cash.
   B. Every dollar of net income must remain in the bank.
   C. Depreciation is always a cash payment in the current period.
   D. Free cash flow ignores investment in operating assets.

5. A firm has EBIT of \$200 and a tax rate of 25%. Net fixed assets increased by \$40, and net working capital increased by \$10. Using the class method, what is its free cash flow?

   A. \$150
   B. \$140
   C. \$100
   D. \$200

6. You will receive $1,210 exactly two years from today. If the annual discount rate is 10%, compounded annually, what is the present value?

   A. $1,000
   B. $1,100
   C. $1,210
   D. $1,464.10

7. Holding the amount and payment date fixed, what happens to the present value of a positive future cash flow when the discount rate increases?

   A. It increases by the same percentage as the rate.
   B. It stays the same.
   C. It becomes equal to the future cash flow.
   D. It decreases.

8. A project pays $100 at the end of Year 1 and $200 at the end of Year 3, with nothing in Year 2. At a 10% annual discount rate, which expression gives the present value of these receipts?

   A. $100/(1.10) + 200/(1.10)^2$
   B. $100/(1.10) + 200/(1.10)^3$
   C. $300/(1.10)^3$
   D. $100(1.10) + 200(1.10)^3$

9. A two-year bond has a $1,000 face value and an 8% annual coupon rate, paid semiannually. Its yield to maturity is 10% per year, and the next coupon is due in six months. What is its price, to the nearest cent?

   A. $1,000.00
   B. $965.29
   C. $964.54
   D. $822.70

10. An asset will pay $6 one year from today, with annual payments growing at 2% forever after that. If the required annual return is 8%, what is its value today?

    A. $100
    B. $75
    C. $102
    D. $300

Quiz 2 — Formula Sheet

DuPont identity

$$ROE = \underbrace{\frac{\text{Net income}}{\text{Revenue}}}_{\text{Net profit margin}} \times \underbrace{\frac{\text{Revenue}}{\text{Total assets}}}_{\text{Asset turnover}} \times \underbrace{\frac{\text{Total assets}}{\text{Book equity}}}_{\text{Equity multiplier}}$$

Free cash flow — class method

$$FCF = EBIT(1-\tau) - \Delta NFA - \Delta NWC$$

τ = tax rate; NFA = net fixed assets (net PP&E); NWC = current assets minus current liabilities. Each Δ is the ending balance minus the beginning balance.

Enterprise value

$$EV = \text{Market capitalization} + \text{Debt} - \text{Excess cash}$$

Present and future value

$$PV_0 = \frac{CF_t}{(1+r)^t} \qquad FV_T = CF_t(1+r)^{T-t}$$

CF_t is the cash flow at date t; r is the rate per period. For several cash flows, move each to the same date, then add:

$$PV_0 = \sum_{t=0}^{N} \frac{CF_t}{(1+r)^t} \qquad FV_T = \sum_{t=0}^{T} CF_t(1+r)^{T-t}$$

Perpetuity and growing perpetuity

$$PV_0 = \frac{CF_1}{r} \qquad PV_0 = \frac{CF_1}{r-g} \quad (r > g)$$

CF_1 is the first payment, one period from today; g is the constant growth rate per period. The level perpetuity uses $r > 0$.

Bond price — coupon payments plus face value

$$P = C\left[\frac{1-(1+r)^{-N}}{r}\right] + \frac{F}{(1+r)^N}$$

C = coupon per period; F = face value; N = number of remaining payment periods; r = yield per period. The next coupon arrives in one period. Match the rate to the payment interval; express rates as decimals.