

Part I Investment Basics

INVESTMENT RETURN AND RISK

1. Using a HP17B. Note that the repayments are monthly, so we then need to calculate the interest payable on a monthly basis.

Hence there will be $20 \times 12 = 240$ payments.

FIN, TVM. NB. Set the payments at 1 P/YR (1 per period). The number of periods then becomes 240.

PV +100,000
IR $6.85/12 = 0.570833$
FV 0
N 240
PMT -766.32

Answer is (a)

2. We take the monthly standard deviation and multiply by the square root of time. In this case, $5.25 \times \sqrt{12} = 18.19\%$

Answer is (d)

3. First we calculate the purchase price of the CD

$$\begin{aligned} \text{PRICE} &= \frac{\$1,000,000 \left[1 + \left(0.10 \times \frac{180}{360} \right) \right]}{\left[1 + \left(0.095 \times \frac{90}{360} \right) \right]} \\ &= \frac{\$1,050,000}{1.02375} = \$1,025,641.03 \end{aligned}$$

Then we calculate the sale price of the CD 30 days later as a 60 day CD

$$\begin{aligned} \text{PRICE} &= \frac{\$1,050,000}{\left[1 + \left(0.096 \times \frac{60}{360} \right) \right]} \\ &= \$1,033,464.57 \end{aligned}$$

Then we work out the annual holding period return on a 365 day basis

$$\begin{aligned} \text{HOLDING PERIOD} &= \left\{ \frac{\$1,033,464.57 - \$1,025,641.03}{\$1,025,641.03} \right\} \times \frac{365}{30} \times 100 \\ \text{RETURN} &= \underline{\underline{9.28\%}} \end{aligned}$$

Answer is (b)

4. The loan commences on 30 Sept for 6-months, terminating on 31 March, 2003 [30 March is a Sunday]. Using the time function on the HP calculator, the actual days in this three-month period are 182.

Accordingly, given a act/365 day count convention, the interest payable on a £1m deposit is: $\text{£1m} \times 0.04125 \times 182/365 = \text{£}20,568.49$

Answer is (b)

5. Cash flows =
Years

$$\begin{array}{cc} \frac{1-5}{\$1000} & \frac{6-11}{\$2000} \end{array}$$

Present Value of the cashflows	:	3790.79
		5408.55
Total PV		$\$9,199.34 \times (1.10)^{11}$

which gives a Future Value of :		\$26,246.79
Required amount :		\$30,000.00

Deficiency		\$3,753.21
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The additional three years annuity with a FV of \$3,753.21 would be met by equal instalments of \$1,133.91.

Answer is (c)