Worksheet on buying on margin and selling short.

Buying on Margin

=> Buying on margin means borrowing to buy securities. 
=> Margin refers to the part not borrowed. 
=> Margin = [(current value of the securities) – (amount borrowed)]/(current value of securities)

• If the initial margin is 40%, and you are buying 100 shares at $20/share, how much money do you have to have to provide?

You need to provide 40% of $2,000, or $800.

Your account is:
______________________________________
$2,000 Stock | $1,200 Debt
$800       | $800 Equity

• If the price increases to $30, what is the margin now?

Your account is:
___________________________________________
$3,000 Stock | $1,200 Debt
$1,800 Equity

Margin = ($3,000-$1,200)/$3,000 = 0.60

• If you sell at a price of $30 one year from now and the margin interest rate was 10%, what was your rate of return?

(3,000-1.1*1,200 - 800)/800 =

• The maintenance margin is 10%. At what price would you have a margin call?

(100*P - $1,200)/100*P = 0.1

90P = $1,200

P = $13.33

Selling Short

=> Selling short means to borrow securities in order to sell them now. 
=> You must provide cash or securities (margin) which is added to your account 
=> Margin = [(assets in account) – (current value of securities)]/(current value of securities)
• If the initial margin is 40%, and you are selling 100 shares at $20/share, how much money do you have to provide and how much is in your account?

Your Account

$2,000 Cash | $2,000 (Value of 100 shares)  
$800 Cash (for marg) | $800 Equity

• If the price increases to $25, what is the margin now?

Your T-account

$2,000 Cash | $2,500 Shares (Value of 100 shares)  
$800 Cash | $300 Equity

• If you close your account one year from now, buying at a price of $25 (assume that margin interest rate was 10% on the initial value of shares borrowed, no interest was earned on cash in your account and no dividends were paid), what was your rate of return?

\[
\frac{(2,800 - 2,500 - 200 - 800)}{800} = -0.875
\]

• The maintenance margin is 10%. At what price would you have a margin call (ignoring interest)?

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\frac{(2,800 - 100*P)}{100*P} = 0.1
\]

\[110P = 2,800\]

\[P = \$25.45\]
Problems

1) If the initial margin is 50%, and you are buying 200 shares at $30/share, how much money do you have to provide?

2) If the price decreases to $20, what is the margin now?

3) If you sell at a price of $20 one year from now and the margin interest rate was 10%, what was your rate of return?

4) The maintenance margin is 15%. At what price would you have a margin call?

5) If the initial margin is 50%, and you are selling 200 shares short at $30/share, how much money do you have to provide and how much is in your account?

6) If the price decreases to $20, what is the margin now?

7) If you close your account one year from now, buying at a price of $20 (assume that margin interest rate was 10% on the initial value of shares borrowed, no interest was earned on cash in your account and a $1/share dividend was paid), what was your rate of return?

8) The maintenance margin is 15%. At what price would you have a margin call (before interest and dividends)?

Answers

1) $3,000

2) 25%

3) -76.7%

4) 17.65

5) $3,000; $9,000

6) 125%

7) 40%

8) $39.13