The market, one question at a time

Eleven free lessons in money and investing

Follow one example through three questions in each lesson. The figures beside each answer give you a way to check the arithmetic. Open the interactive version to change the starting point and see what happens.

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Investing basics

A share is a small piece of ownership in a business. Suppose you have $150 in an account and use it to buy three shares at $50 each. Just after the purchase, the account still shows $150 in value. That value is now in the three shares. A month later, the shares are trading at $48. The number of shares you own hasn't changed. The price you could sell them for has.

01 What are the three shares worth today?

Multiply the new $48 price by three. The shares are worth $144. A one-dollar move to $49 adds three dollars to the account. The change in price alone puts no cash in the account.

$50 per share	$48 per share	$49 per share
$150	**$144**	**$147**

02 Can the shares pay you cash while you still own them?

A company that pays a dividend sends cash to its shareholders. At 50 cents per share, three shares pay $1.50. Doubling the dividend doubles the payment. In either case, the owner keeps all three shares.

Dividend per share	Shares owned	Cash received
$0.50	**3**	**$1.50**

03 What sale price gets you back to $150?

The $1.50 dividend leaves $148.50 to recover through the sale. Divide that by three. A sale at $49.50 a share, plus the dividend, brings the account back to $150.

Sale proceeds	Dividend	Total received
$148.50	**$1.50**	**$150.00**

What do you own when you buy a stock?

When you buy stock, you become one of the company's owners. Usually the person who owned the shares before you gets the money. The company receives the money when it sells shares itself. That difference matters. Two purchases at the same price can do quite different things to the company's bank balance and to the fraction of the business each shareholder owns.

01 Who gets the $500?

Ten shares change hands for $50 each. If the company issues the shares, it receives the $500. If a shareholder sells ten existing shares, the shareholder gets the $500 and the company collects nothing.

Cash paid	New issue pays	Resale pays
$500	**Company**	**Prior owner**

02 How much of the company do you own?

Ten of the company's 100 shares belong to you. Ten divided by 100 is one-tenth, or 10%. Buying another ten existing shares would double your share of the business while leaving the total number of shares at 100.

Shares outstanding	Your shares	Your ownership
100	**10**	**10%**

03 Can you own a smaller fraction while keeping all 10 shares?

The company issues another 100 shares to someone else. You still own ten shares, but the whole company is now divided into 200. This decline in your ownership percentage is called dilution.

Before the issue	After the issue	New ownership
10 of 100	**10 of 200**	**5%**

How money grows over time

Put $5,000 into an investment that earns 6% in its first year, and you gain $300. If it earns 6% again the next year, you gain $318. Same rate, more money. That second year, you're earning a return on $5,300 instead of $5,000. That's compounding. Money earned in an earlier year can earn money of its own.

01 Where did the extra $18 come from?

The first year's $300 earns another $18 if it stays invested. If it is withdrawn, the account ends year two at $5,300 and the owner still has the withdrawn $300. Compare total wealth in both cases.

Reinvested after year 2	Withdrawn, cash included	Difference
$5,618	**$5,600**	**$18**

02 What difference can one percentage point make?

The gap between steady annual returns of 6% and 7% starts at $50. Each year the higher rate applies to a bigger balance. A fee works in reverse. Money paid in fees leaves the account and stops earning future returns.

Gap after one year	After ten years	After thirty years
$50	**$882**	**$9,344**

03 Does a 10% loss cancel a 10% gain?

Year one adds 10% of $5,000, or $500. Year two takes away 10% of $5,500, or $550. The two percentages have different starting points, which leaves the account $50 below where it began.

Starting balance	After gaining 10%	After losing 10%
$5,000	**$5,500**	**$4,950**

Reading a stock chart

A stock chart compresses a day of trading into a few marks. One common mark, called a candlestick, shows the opening price, the highest and lowest prices, and the closing price. Its wide middle, or body, spans the open and the close. Its thin ends reach the high and the low. Those four prices tell you where the stock began and ended and how far it traveled in either direction. They leave out the order of events. A stock could have touched its high before lunch or in the last minute of the day and left exactly the same candle.

01 What changes when the stock closes at a different price?

A stock opens at $50, reaches $54, dips to $48 and closes at $52. On a candlestick chart, the body connects $50 to $52. A close of $49 would put the body below the open while leaving both ends of the thin line in place.

High and low	Open	Close
$54 / $48	**$50**	**$52**

02 Can the stock rise for the week while falling on most days?

Monday closes at $50. The next three closes are $49.50, $49 and $48.50. Friday closes at $52. Three half-dollar declines were smaller than Friday's $3.50 rise. The weekly candle shows a $2 gain from the first open.

Start of week	Thursday close	Friday close
$50.00	**$48.50**	**$52.00**

03 Was Friday unusually busy?

Volume counts the shares that traded. Friday's 200,000 shares are double the average of the previous 20 trading days. Every trade had a buyer and a seller. This comparison measures activity, and leaves direction to the price chart.

Prior daily average	Friday volume	Times the average
100,000	**200,000**	**2×**

Reading an earnings report

An earnings report tells you how a business did over a period of time. Start with two lines. Revenue is what the company earned from sales. Net income, often called profit, is what remains after all expenses. Suppose a company had $100 million in sales and $90 million in expenses last year. This year, sales reached $110 million. Whether it was a better year for profits depends on what it cost the company to make those sales.

01 Can sales rise while profit falls?

Last year, $100 million in sales minus $90 million in expenses left $10 million in profit. With sales of $110 million this year, expenses of $100 million would preserve that profit. At $102 million in expenses, profit falls to $8 million.

Current sales	Current expenses	Current profit
$110m	**$102m**	**$8m**

02 How much does the company keep from each dollar of sales?

Start this comparison with $70 million of production costs and $30 million of other expenses. That leaves $10 million of profit on $110 million in sales. Divide the profit by sales. The company keeps about 9.09 cents per dollar.

Cost of making goods	Other expenses	Profit margin
$70m	**$30m**	**9.09%**

03 Can the company report a sale before the customer pays?

The business delivers $100 of goods that cost $70. It has earned $30 on the sale. If the customer pays $40 today, the other $60 remains an account receivable. Collecting that $60 next quarter brings cash in without creating another sale.

Sale recorded	Cash received now	Customer still owes
$100	**$40**	**$60**

Why can a stock fall after good news?

A company can earn more money than it did a year ago and still disappoint the people who own its stock. Before the announcement, those people were already forming opinions about what the company would earn. Some had paid a price that made sense to them only if business was growing quickly. Say profit rose from $10 million last year to $12 million this year. That's a 20% increase. Whether $12 million came as welcome news depends partly on the number people had in mind.

01 Did earnings beat expectations?

Profit rose from $10 million to $12 million, a 20% gain. Analysts expected $13 million. Earnings grew, yet fell $1 million short of the estimate. An $11 million estimate would turn the same result into a $1 million surprise in the other direction.

Prior profit	Latest profit	Expected profit
$10m	**$12m**	**$13m**

02 What did management say about next year?

Management previously expected to earn $15 million next year. It now expects $13 million. That is still above the $12 million just earned, but it is $2 million below the old forecast. Those comparisons answer different questions.

Just reported	Old forecast	New forecast
$12m	**$15m**	**$13m**

03 How did the stock actually trade around an announcement?

NVIDIA announced results at 4:20 p.m. Eastern on August 28, 2024, after regular trading closed. From that close to August 29, the stock fell 6.38%. The S&P 500 price index was nearly flat. That measures a reaction over one session. It cannot identify every reason people traded.

Aug. 28 close	Aug. 29 close	S&P 500 change
$125.61	**$117.59**	**0.004%**

NVIDIA earnings release **S&P 500 price series**

What does it mean when the market goes up?

When a newscaster says the market rose, the number usually comes from a stock index, a measure that combines the performance of a group of stocks. The group can have a good day even if most of its members have a bad one. Two details determine the result. How far did each stock move? And how much does that stock count in the index? That second number is its weight. A stock with a weight of 20% accounts for one-fifth of the index.

01 Can four of five stocks fall on a day the index rises?

With equal weights, add the five percentage changes and divide by five. Four losses of 1% and one gain of 5% leave a 0.2% index gain. If the fifth stock rose exactly 4%, the index would finish flat.

Four stocks	Fifth stock	Index return
1% each	**+5%**	**+0.2%**

02 Why can the same five returns produce two different headlines?

Now give the winning stock 60% of the index. Its gain contributes three percentage points. Together the four losers account for the remaining 40% and subtract 0.4 percentage point. The weighted result is a 2.6% rise.

Largest weight	Winner contributes	Index return
60%	**+3.0 pts**	**+2.6%**

03 How many stocks took part in the gain?

An equal-weight index rises 1% if all five stocks gain 1%. It also rises 1% if four fall 1% and the fifth gains 9%. The fraction of stocks that rose measures how widely the gain was shared.

All gain 1%	Four lose 1%	Index in both cases
5 of 5 rise	**1 of 5 rises**	**+1%**

Why do interest rates matter to a business?

A change in interest rates can alter a company's profit even if it sells the same goods to the same customers. The first place to look is its debt. How much does it owe, what rate does it pay, and when can that rate change? Take a company that owes $1 million. At a fixed annual rate of 4%, it pays $40,000 a year in interest on that balance. The rate stays fixed for the life of the loan. The next loan may come with a different price.

01 What does a higher rate cost in dollars?

On a $1 million loan, each percentage point of annual interest costs $10,000. A rate of 6% raises the full-year cost to $60,000. Compared with 4%, that takes another $20,000 from the business each year.

Annual cost at 4%	Annual cost at 6%	Increase
$40,000	**$60,000**	**$20,000**

02 When does the company start paying the higher rate?

If the loan renews halfway through the year, half the year carries the old 4% rate. That costs $20,000. Six months at 6% costs $30,000. Together they come to $50,000 for the year of the change.

First six months	Next six months	Year of renewal
$20,000	**$30,000**	**$50,000**

03 How much extra business would cover the larger bill?

Suppose the business keeps 20 cents from each extra sales dollar after covering the cost of that sale. To earn $20,000 more, it needs $100,000 in added sales. At 25 cents per dollar it would need $80,000.

Higher annual bill	Kept per sales dollar	Sales needed
$20,000	**$0.20**	**$100,000**

What did the investment earn?

An investment's return is the gain or loss compared with the amount you started with. The ending share price is only part of that calculation. Cash the company paid you counts, and so does money that left the account to cover a fee. Start with $100 in shares. Follow it all the way through the account, then see what the ending balance would actually buy.

01 Could the price finish unchanged and still leave you ahead?

The share starts and ends at $100. Its owner receives a $4 dividend in cash. The $104 total leaves a $4 gain on the original $100, a 4% return before fees and taxes.

Share value	Cash dividend	Ending value
$100	**$4**	**$104**

02 How much of the gain did the owner keep?

Start with the same $4 dividend, then subtract the $2 account fee. The owner ends with $100 in shares and $2 in cash. That leaves a $2 gain, or 2% of the beginning balance.

Before the fee	Fee	Ending balance
$104	**$2**	**$102**

03 Can more dollars buy fewer groceries?

A basket that cost $100 now costs $104. The $102 account falls $2 short. Divide $102 by $104 to see how much of the basket it can buy. Purchasing power has fallen about 1.92%, even though the dollar balance rose.

Starting basket	Same basket now	Ending balance
$100	**$104**	**$102**

Can different stocks carry the same risk?

A lumber supplier, a window manufacturer, and a cabinetmaker sell different things. But a single canceled housing development could cost all three an order. Owning shares in all three businesses would still leave someone exposed to a slowdown in home construction. To see how much the businesses depend on the same customers, start with their sales. A cabinetmaker that supplies mostly new subdivisions has a different business from one that sells mostly to homeowners remodeling older kitchens.

01 How much of each company’s business comes from new homes?

In the lab, change the lumber supplier’s share of sales to builders. The window maker stays at 40% and the cabinetmaker at 30%. At the starting settings, three different businesses all depend on new construction for some of their orders.

Lumber supplier	Window maker	Cabinetmaker
60%	**40%**	**30%**

02 What happens if builders put up fewer houses?

Suppose new homebuilding falls 20%, and sales to builders fall with it. Other customers spend as before. The lumber supplier loses 20% of the 60% that depends on builders. That works out to 12% of its total sales.

Lumber sales	Window sales	Cabinet sales
12%	**8%**	**6%**

03 How much does a fourth business change the picture?

Give each of four businesses $100 of sales. A roofer with $70 in builder sales brings the group’s total to $200 out of $400. A grocer with no builder sales leaves it at $130 out of $400. Those figures describe sales exposure, not a forecast of share prices.

With roofing supplier	With grocery chain	Total group sales
50%	**32.5%**	**$400**

How do you judge a seasonal pattern?

A seasonal window is a stretch of the calendar that you examine year after year. Suppose a stock rose in eight of the last ten Novembers. You know how often its price rose during those months. You still need the size of the gains and losses to know how the average November turned out. Start by changing the two losses in a practice example. Then consider two harder questions. How much of the rise did the stock share with the market? And what happened in years that were still in the future when the dates were chosen?

01 Do eight gains in ten years guarantee a positive average?

Eight gains of 2% add to 16 percentage points. Two losses of 8% subtract all 16 points. Divide the sum by ten years and the average is zero. A count of winning years misses the size of each result.

Winning years	Two losses	Average return
8 of 10	**8% each**	**0%**

02 How did the market do over those same dates?

In November 2010 the Thrift Savings Plan’s S Fund gained 3.00%. Its C Fund gained 0.01%. The difference is 2.99 percentage points. The C Fund follows large U.S. companies, while the S Fund covers U.S. stocks outside the S&P 500.

November 2010 S Fund	November 2010 C Fund	Difference
+3.00%	**+0.01%**	**2.99 pts**

03 Did the pattern continue once the dates were set?

Lock November after examining 2004–2013. The S Fund beat the C Fund in five of those ten Novembers. From 2014 through 2025 it beat the C Fund in six of twelve. Choosing a different month after seeing the later results would use those years to design a new test.

Earlier Novembers	Later Novembers	Months compared
5 of 10	**6 of 12**	**November**

Federal data catalog Monthly fund returns