THE IRA DISTRIBUTION CALCULATOR

This calculator, in spreadsheet format, is intended to provide an overview of projected distributions from an IRA or similar retirement account. There are many different online calculators available, but virtually all of them provide a very narrow look at a single question: "What will my mandatory distribution be for this year?" We believe that IRA owners and their advisers should have a wider scope of information about what will happen before and after required minimum distributions (RMDs) begin. This calculator provides very detailed information.

A word of caution – the calculator, the projected distributions, and the comments made here apply to IRAs (including an account converted by a surviving spouse to his or her own name) and the several variations on 401-k accounts. They do not apply to Roth IRAs, to accounts that have been inherited from someone other than a spouse, or to pensions payable by former employers.

The terms that are used here are:

- Participant – The person who owns the accounts and whose earnings were used to fund the account over his working lifetime.
- Designated beneficiary – The person named by the participant to receive the funds after his death.
- Distribution – Any withdrawal of money from the account by, and paid to, the participant. This money is recognized and taxed as ordinary income for the year of the distribution.
- Required minimum distributions (RMDs) – Yearly withdrawals from the accounts that must begin once the participant reaches age 72. (For that first year only, he can wait until April 1 of the next year, but that should be avoided if it will nudge him into a higher tax rate for that next year.)

The calculator begins with certain assumptions, but any of them can be changed. We start with an assumed value of all IRAs that the participant has created and funded. The figure we use here is $500,000.

IRA distribution calculator

Inputs

Age of participant	72
Principal amount	$500,000
Rate of return	3%

The user enters the desired figures into the yellow-shaded cells on the first page

In this calculator, we use 3% as an assumed rate of return, the overall rate by which we project that the account will grow in one year. This includes the generation of any income, whether in the form of interest, dividends, or capital gains, and the growth (or reduction) in the value of the principal. If one of the components of a $500,000 portfolio is a block of 1,000 shares in General Motors, currently worth

$42,000, the dividends that are paid out to shareholders over the year and an increase in market value from $42,000 to $44,500 in that same year are both included in this calculation of "earnings." This is consistent with the statute and with IRS regulations, which simply use the value of all IRAs at the end of a calendar year to calculate the next year's RMD without regard to how that value was reached.

Assume that dividends paid by General Motors totaled $1,500 but the value of the shares went down by $2,700 by year's end. Both of those changes are considered, and the net result (as it relates to the shares in GM) is a loss of $1,200.

In previous years, we used an assumed earnings rate of 7% per year. Today we are more cautious and we use a 3% rate of return. As you apply this calculator over time, of course, you will find that the overall growth (or shrinkage) of the account will be different each year, and over several years you may find that the total growth exceeds the 3% average figure. If it does, so much the better. You do not want to overstate expectations but there is nothing wrong with underestimating them.

IRAs are subject to Required Minimum Distribution (RMD) provisions under the Internal Revenue Code. Beginning with the year he turns 72, the participant must begin taking distributions from the account based on a schedule prescribed by the IRS. If the participant dies, and if his spouse has been properly named as designated beneficiary, she has two options:

- she can wait until the participant's age 72 year and begin taking distributions, or
- she can convert the account to her name, and the RMDs will then begin for the year of *her* 72nd birthday.

Keep in mind that the participant or the spouse can take out more than the RMD at any time, and that all distributions are recognized and taxed as ordinary income.

The RMD is calculated for a given year by adding together the previous year's end of year values for all IRAs owned by the participant, and dividing that figure by a divisor specified in the IRS tables for that year. (Note: The IRS updated those tables in 2020, but the updated divisors will not be effective until 2022.)

Year	Age	earned	div	Distr	Balance
					500,000
2022	72	15,000	27.4	18,248	496,752

The divisor for the age 72 year is 27.4. Assuming a 2021 end of year value of $500,000, the resulting RMD is $18,315 ($500,000 divided by 27.4). That is 3.65% ($18,248 divided by $500,000) of the principal. (Why doesn't the IRS simply specify RMDs by percentage?)

That money will need to be taken out some time in the calendar year 2022. Often the participant will wait until late in the year to take it out, to allow the money to continue to grow, but the timing is up to him. He can direct the custodian as to how much and when to distribute the funds. If he does nothing, the custodians normally separately calculate the RMD for each account and send him the money in the form of a check sometime late in the year. If he has more than one account with more than one custodian, he has to add up all of the end of year balances to make the calculation, but he can take the money from any of the accounts.

As we saw above, the use of the 27.4 divisor for the first year (age 72) under the RMD schedules published by the IRS translates to a distribution of 3.65%. That percentage increases each year; the percentages for the first five years are as follows:

72	3.65%
73	3.77%
74	3.92%
75	4.07%
76	4.22%

There are several factors that can affect the calculations. Beginning at age 59½, the participant can begin taking money out of the account without incurring a penalty, even though distributions are not required. He can continue to make contributions to the account as long as he is working. After RMDs begin, he is free to take out more money if he wishes. If they apply, those factors will need to be accounted for when using this calculator.

The calculator is designed to give the user a projection of what will happen with the account over several years, indeed into the next couple of decades. Each year, the value will grow and that growth is added to the principal in the calculation.

The display starts as follows:

Year	Age	earned	div	Distr	Balance
					500,000
2022	72	15,000	27.4	18,248	496,752
2023	73	14,903	26.5	18,745	492,909
2024	74	14,787	25.5	19,330	488,367
2025	75	14,651	24.6	19,852	483,165
2026	76	14,495	23.7	20,387	477,273

The projection is that the principal will earn 3%, or $15,000, during the age 72 year. The RMD will be $18,315 and will have to be paid out sometime during that year. Because of the amount earned, the amount in the account goes down by only $3,315. If the actual amount earned that year is 3.66% or higher, the balance at year-end will be *higher* than the balance at the end of the previous year.

As we note above, the divisor goes down each year. As a result, even though the principal is also going down, the RMD increases a little each year. The amount of the projected increase is roughly 1% of the original principal amount, or $500 per year in our hypothetical.

Over time, the actual values for each year can be entered into the spreadsheet, replacing the projection with a value showing the actual performance of the accounts from year to year.

Year	Age	earned	div	Distr	Balance
					500,000
2022	72	22,355	27.4	18,248	504,107
2023	73	18,915	26.5	19,023	503,999
2024	74	15,120	25.5	19,765	499,354
2025	75	14,981	24.6	20,299	494,036
2026	76	14,821	23.7	20,845	488,012

Here we have entered actual values in red, so that we can clearly distinguish our projections from our actual track record. Given the actual value of $504,040 at the end of 2022, the RMD for 2023 will now be $19,093, almost $300 higher than the projection. At the beginning of each year, we know what the balance was at the end of the previous year and, based on that figure, what the RMD will be for the

current year, but we will only be able to enter the actual increase in value under the "earned" column at the end of the current year.

Other observations about the series of distributions over the years:

- With an assumed 3% rate of return, there is an 83-83 rule. At the end of the participant's age 83 year, the value of the principal is projected to be 83% of the starting amount.

2033	83	12,792	17.7	**24,090**	415,102	5.65%	83.0%

- At the end of his age 93 year, the principal is still over 50% of the starting amount.

2043	93	8,273	10.1	**27,303**	256,735	9.90%	51.3%

- The RMD increases every year for the first twenty years. It is only after that same age 93 year that the annual RMD begins to go down rather than going up.

These observations tell us that, for the majority of IRA owners, there will be some money left in the account for their children or other beneficiaries if only the RMDs are taken.

Alternative version – This variation on the calculator begins before age 72, and follows the growth of the account for several years before RMDs must begin. The calculation differentiates between the pre-RMD years, when no distributions are required and the money in the account grows at the assumed rate of return, and the RMD years, when it will continue to grow but will be reduced each year by the RMDs. The example as displayed here assumes that the participant is currently 60 years old and that no additional contributions will be made to the accounts during the next 12 years. The account is projected to grow from $500,000 to $712,880 by the time the RMDs begin. Again, actual end of year values can be entered as those years pass, and any voluntarily early distributions that are made from the account can also be entered.

Year	Age	earned	div	Distributions	Rem'g
			Total	987,451	
					500,000
2020	60	15,000		0	515,000
2021	61	15,450		0	530,450
2022	62	15,914		0	546,364
2023	63	16,391		0	562,754
2024	64	16,883		0	579,637
2025	65	17,389		0	597,026
2026	66	17,911		0	614,937
2027	67	18,448		0	633,385
2028	68	19,002		0	652,387
2029	69	19,572		0	671,958
2030	70	20,159		0	692,117
2031	71	20,764		0	712,880
2032	72	21,386	27.4	26,018	708,249
2033	73	21,247	26.5	26,726	702,770

Comparisons - Included in this collection are four comparisons, which show the projections for earnings and distributions based on an assumed annual earning rate of 3%, 4%, 5%, and 6%. When the rate is above 3%, the projection shows the balance increasing rather than decreasing every year for the first several years. In each calculation, because the divisor is lower each year, and the required distribution

as a result is higher each year, eventually the high-water mark is reached and the year-end balance begins to fall. But at higher assumed earning rates, that high-water mark occurs later in the life of the account. At a 6% earning rate, the owner of the account finds that the money in the account does not fall below its initial funding level until he has reached age 94, a full 22 years after he begins taking required distributions.

Notes on copyright

The two calculators include the following copyright notice: