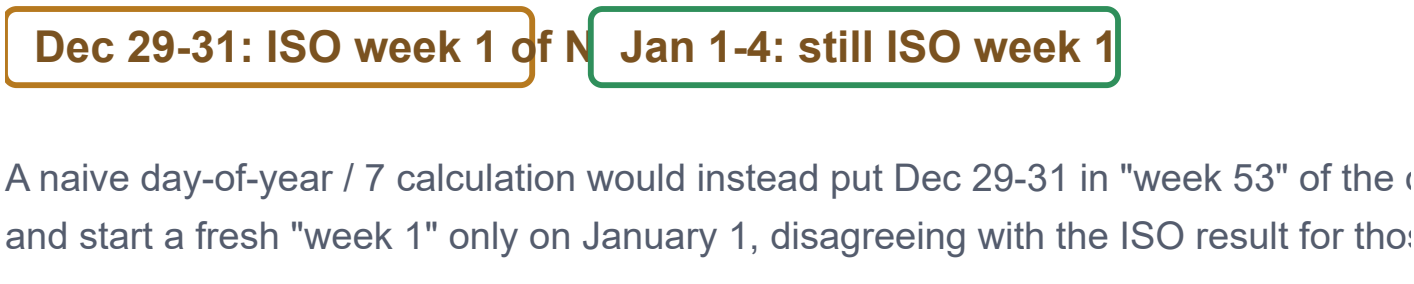
ISO Week Numbers vs. Plain Calendar Weeks

> "Week 1" of a year does not always start on January 1, and two different week-numbering systems can disagree about which week a given date falls in.

A "week number" sounds like a simple count of 7-day blocks since January 1, but the ISO 8601 standard defines it differently. Week 1 of an ISO year is the week containing that year's first Thursday, which means ISO week 1 can start as early as December 29 of the previous year or as late as January 4. A naive week-numbering scheme that just divides the day-of-year by 7 disagrees with ISO week numbers for a meaningful fraction of the calendar, especially near year boundaries.

Dec 29 - Jan 4, ISO week numbering



ISO week numbering can assign the last days of December to the following year's week 1, which a simple day-count scheme never does.

The rule ISO 8601 actually uses

ISO 8601 defines weeks as always running Monday through Sunday, and assigns a week to whichever ISO year contains that week's Thursday. Because of this, a week can straddle a December/January boundary and be numbered as week 1 of the new year even though most of its days fall in December, or conversely be numbered week 52 or 53 of the old year even though a couple of its days fall in January.

Why a naive scheme disagrees

A simpler, non-ISO week count that just increments every 7 days from January 1 (or from the nearest preceding Sunday or Monday) does not apply the "which year contains this week's Thursday" test at all, so it can label the same calendar date with a different week number than the

ISO standard does, particularly for dates in the last few days of December and the first few days of January.

Where this matters

Payroll, reporting, and scheduling systems that reference "week 1" or "week 52" for a fiscal or reporting period need to state which numbering system they use, since a report generated under one system and read under the other can misattribute a handful of late-December or early-January transactions to the wrong week. The Week Number Calculator computes the ISO week explicitly and states the ISO year it belongs to whenever that differs from the calendar year of the date itself.

Key takeaway. ISO week numbers assign a week to whichever year contains its Thursday, which can pull late-December dates into next year's week 1. Confirm which week-numbering system a report or schedule actually uses near year boundaries.

Frequently asked

Can a year have 53 ISO weeks?

Yes. A year has 53 ISO weeks whenever January 1 falls on a Thursday (or on a Wednesday in a leap year), roughly once every five to six years. Otherwise it has 52.

Does the ISO week always start on Monday?

Yes, by definition. This is different from calendar conventions that treat Sunday as the first day of the week, which is a separate, non-ISO choice some regions and applications make.

Which system does WhenMath use by default?

The Week Number Calculator computes the ISO 8601 week and year directly, and the Weeks-in-Year Calculator reports whether a given year has 52 or 53 ISO weeks.

WhenMath is a browser-local calculation tool, not a legal, payroll, or scheduling authority. This guide explains a calculation convention; it is educational, not a determination that any specific contract, employer, or jurisdiction follows it.