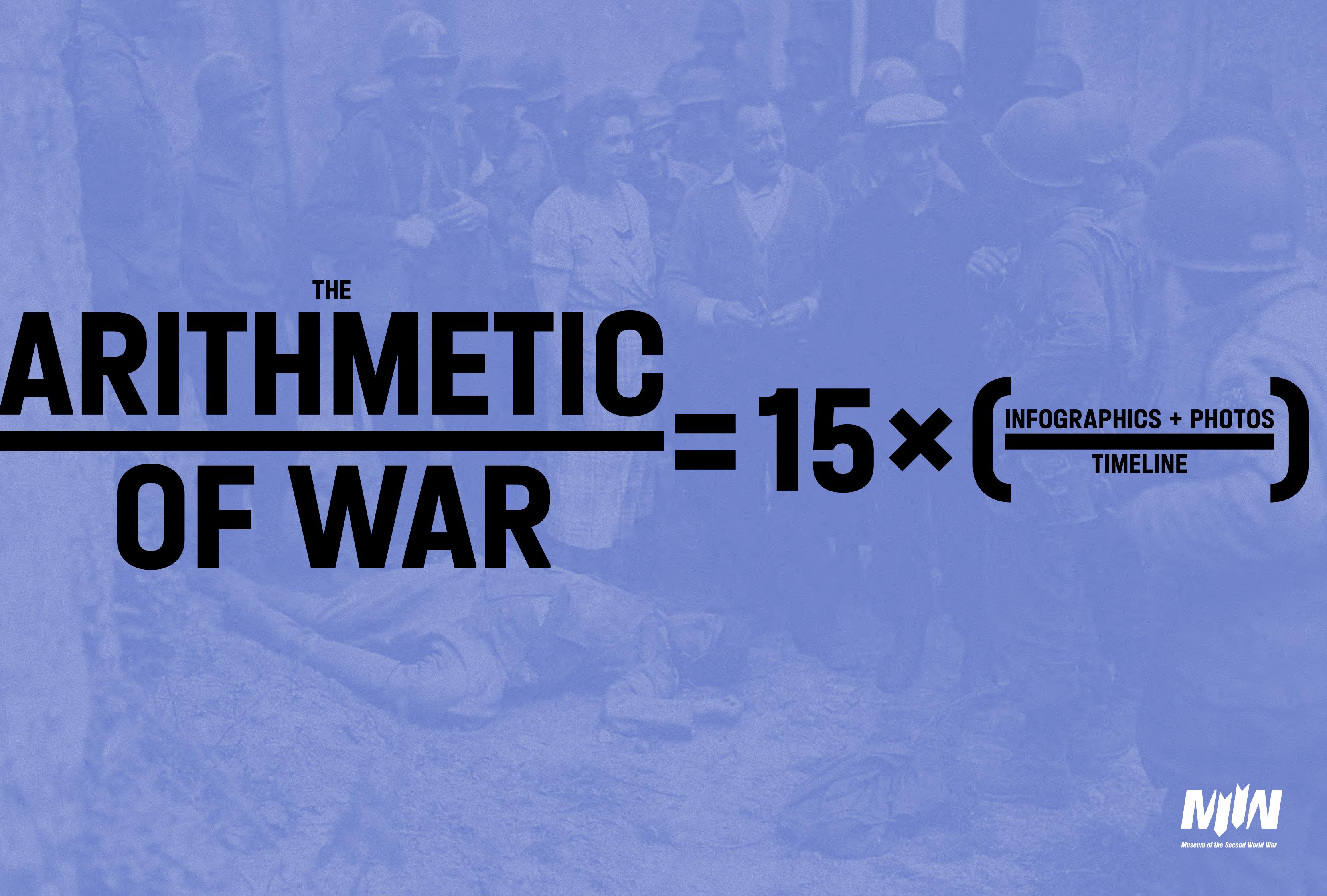


THE

# ARITHMETIC OF WAR

| GDAŃSK 2022

WWII BATTLES  
IN 15 INFOGRAPHICS



THE

# ARITHMETIC OF WAR

= 15 × [

INFOGRAPHICS + PHOTOS

TIMELINE

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# FOREWORD

**Even today, World War II is viewed as the most horrific conflict in living memory. Most of the war's victims were civilians, killed either during military operations or murdered as a result of political or racial oppression. The lust for power of a small group of politicians and dictators, bent on building their empires, led to the death of several million people. For a few years, those politicians and dictators were able to change the course of history to satisfy their ambitions. In 1945 they were defeated. Their decisions, however, cast a long shadow over the lives of hundreds of millions of people for decades to follow. Viewed through its horrendous consequences, this war is, as it were, still with us.**

| Grzegorz Berendt, PhD Dsc Director of the Museum of the Second World War in Gdańsk

The book that you are about to read tells the story of various nations' struggles to overcome the aggressors. Of course, with our museum being located in Gdańsk, we could not have overlooked the Polish input into the war effort. In 1939 Polish soldiers fought on their own, their chances for victory were bleak at best; they, however, fought to the last man standing. For a short period of time they had to succumb to the joint powers of the Nazi Reich and the Soviet Union, only to return very soon to the battlefields of WWII. Then, they kept fighting until the very last hour of the war, along their Western Allies. ¶ The final victory was decided through the collaboration of the USA, Great Britain, and the Soviet Union. When in 1941 the Germans invaded the Soviet Union, their former collaborator, the Soviets, had no choice but to join the Allied coalition fighting against the Axis Powers. Since that moment on, the Soviets bore the brunt of destroying the German armies in Europe. ¶ The Americans and the British fought on other continents. At the same time, they provided financial support to the fighting Soviets. It was this crucial aid that helped the Red Army endure the toughest period of the war with Nazi Germany. The merging of the financial potentials and the human resources of the Allied and other anti-Axis countries was what broke the backbone of the German, Italian, and Japanese imperialisms. The fifteen battles described in this book are selected milestones on the road to final Allied victory in 1945.

**Dear Reader,**  
**In our new book, *The Arithmetic of War: WWII Battles in 15 Infographics*, we attempt to address the immensely complex and in many ways difficult issue of the battles of WWII – the most tragic conflict in world history. We have strived to present the multi-faceted issues of the military clashes of WWII in an accessible and graphically interesting way. The original infographics presented in the book give readers access to both general knowledge and some little known facts about WWII battles.**

| Katarzyna Łuczak World Battlefield Museums Forum Coordinator

The graphic comparisons and charts presented in the book's fifteen chapters emphasize the scale of the armed struggles waged on many fronts. We should keep in mind, however, that behind the raw statistics stand an infinite amount of human suffering, the tragic fate of innocent civilian victims, and the story of millions of people who experienced the atrocities of the war that irrevocably changed their lives. The dissemination of knowledge on the history of WWII not only makes it possible to educate generations to come, but also a commemorates those tragic events, the victims, and the heroes who bravely resisted ruthless aggressors. ¶ What inspired us to create this book was an earlier project carried out by Museum of the Second World War in Gdańsk – World Battlefield Museums Forum. This project launched in 2018, when museum experts from different parts of the world gathered at an international conference to discuss the role and the mission of battlefield museums in contemporary world. But World Battlefield Museums Forum is not just an academic project. A multidisciplinary endeavour that also covers online projects, such as an educational website and the WBMF AR mobile app. These online projects based on modern technologies, such as virtual and augmented reality, have been designed to educate and inform the younger generations about the history of the greatest armed clashes. In our book readers will find QR codes linking to virtual 3D models of soldiers from selected armies. By taking our battle narratives into the online sphere we wanted to combine a traditional form of historical education with modern learning tools, hoping that this would attract a wider audience.

**Dear Reader,**  
***The Arithmetic of War: WWII Battles in 15 Infographics* will take you on a tour across some of the land, sea, and air battles of WWII.**

| Karol Szejko Editor-in-Chief

The choice of the battles in this book is purely subjective. Some of the battles are gargantuan clashes between giant armies involving thousands of tanks and guns, some are much smaller in scope. All are equally important, albeit for different reasons. ¶ Take, for instance, the Battle of Stalingrad. The battle is regarded as one of the pivotal moments of WWII, with the ferocity of the fighting, the terrible losses suffered by both warring sides and the sheer scale of the battle all contributing to changing the course of the war. The scale and duration of the Battle for the Atlantic or of the D-Day operations in western Europe are also awe-inspiring. ¶ At the other end of the scale of WWII battles is the first battle of WWII, the Battle of Westerplatte, which took place on the 1 September 1939. In some history books, with the comparatively limited number of casualties on both fighting sides (fifteen Polish and a few dozen Germans soldiers were killed), the Westerplatte battle is often reduced to just a few lines of text. Westerplatte, however, is a potent symbol of WWII, a legendary clash between the few against an overwhelming enemy. There, with the German attack on the Polish Military Transit Depot, driven by hatred and prejudice, Adolf Hitler unleashed hell across the whole of the world. ¶ The legend of Westerplatte endures, not because of the small numbers of the fallen, but because of the core values which the few Polish soldiers bravely defended. The Biblical story of David and Goliath recurs throughout



ORIGINAL INFOGRAPHICS  
AND DATA VISUALISATIONS

ORIGINAL MAPS ARCHIVAL PHOTOGRAPHS

COLOUR IMAGES OF WWII  
TANKS, AIRCRAFT, GUNS,  
SHIPS AND PERSONAL  
WEAPONS

the history of mankind. ¶ *The Arithmetic of War: WWII Battles in 15 Infographics* is a compilation of texts and images. The accounts of the battles are concise, dramatic, and breathtaking in pace. The chronological narrative is easy to follow and to understand. Battle trivia provide more context and archival photographs help grasp the reality of the battles at the time they were fought; original hand-drawn graphics, graphs, charts and battlefield maps clarify the battle strategies and help explain technical minutiae. A timeline of the most prominent WWII battles runs throughout the book to help place the battles within the time frame of WWII. Each battle narrative is a brief but essential guide to understanding what happened and why. In short, the book provides the details of the WWII battles selected in a convenient nutshell. ¶ During the course of gathering the materials for the book, we could not afford to overlook the Polish input into the final Allied victory – the Polish threads have been accentuated. The exodus of General Anders' Army from the USSR and its subsequent campaign in Italy, the Polish 1st Armoured Division's advance to liberate the Benelux countries, and the crucial role of the Polish RAF pilots in the Battle of Britain have all been discussed. ¶ In summary, history enthusiasts of all ages should find the book's straightforward, factual style of presentation enjoyable and captivating. At the same time, the material comprised in the book should provide inspiration for readers to explore

the history of WWII in much greater detail. ¶ The book has been centred around numbers – human and material losses, tons, miles, days and hours – but it is far from being a dry statistical account. Numbers speak volumes, but the authors have also attempted to touch upon the human factors – the emotions of the soldiers and civilians caught up in the horrors of war. In between the battle accounts, a fleeting reflection should emerge – readers will certainly take a moment's pause to contemplate the harrowing fate of the tens of millions of human beings who perished in combat and those who remained psychologically scarred even after the end of WWII. ¶ Although not purely a scientific analysis of selected WWII battles but rather a popular history overview, we hope the book will nonetheless encourage a broader understanding of the nature of conflict. What have past conflicts taught us? How do we define sacrifice, suffering, compassion, and forgiveness? What is the meaning of courage? What brings out the best and the worst in people? In this contemporary, commercialized world we find ourselves in, seeking the answers to these questions is no less important than at the time of the war's end in 1945. *The Arithmetic of War: WWII Battles in 15 Infographics* is published during the same year of the brutal, unjustified aggression by Russia on an independent, democratic Ukraine. ¶ History, sadly, repeats itself.

# HOW TO READ THIS BOOK

**A short introductory paragraph begins each chapter and provides a general historic background. The main narrative follows in blocks of text and graphic content.**

## DATE OF EVENT

Battle events are arranged in chronological order. Each event is tied with a white line to the black-line timeline of WWII. Little arrows mark the events that are illustrated with photographs or graphics ¶

¶ Sections marked with the letter "i" in a white circle give additional info and interesting facts.

¶ The bibliography for each chapter is placed at the end of the book on ► PAGE 278

→ Two annexes, *Selected Weaponry of WWII* and *Posters*, are placed at the end of the book. Page reference numbers will guide readers to full colour pages.



**MESSERSCHMITT BF 109** Germany's leading WWII fighter plane, Hermann Göring's hope to conquer Great Britain ► SEE P. 260



British poster encouraging recycling  
► SEE P. 275

1939  
1940  
1941  
1942  
1943  
1944  
1945

WORDS

PEOPLE INVOLVED

HOURS IN THE MAKING

GIGABYTES OF DATA

THIS IS THE MAIN TIMELINE

YEAR MONTH DAY

MARKED HERE ARE IMPORTANT WWII EVENTS THAT HAPPEN SIMULTANEOUSLY ON OTHER WARFRONTS

↓ This Kind of a Title Marks an Infographic

Short descriptions below the infographic title will help readers understand illustrated content. An infographic below explains the colour code used in the book. ¶ Countries taking part in the war are assigned colours; colours correspond with the sides countries fought on – Axis or Allies.

Photo and illustration captions are enclosed in grey boxes. The photograph above shows American military personnel in Paris celebrating the surrender of Japan, 15 August 1945

Source: Public domain

Scan & See  
This is a link to the Museum's Sketchfab 3D models – explore our interactive content!  
[sketchfab.com/ww2lmuseum](http://sketchfab.com/ww2lmuseum)

QR code

Diagram illustrating the colour code for the sides countries fought on:

- Blue: Allies
- Red: Soviets
- Khaki: Axis
- Black: Neutral

# AXIS AND ALLIES OF WWII



# THE BATTLE OF WESTERPLATTE

1 SEPTEMBER

7 SEPTEMBER 1939

## THE FIRST BATTLE OF WWII

*Lions of Westerplatte still fight!*

Press release, 3 September 1939

# ROAD TO WAR

018

The Great War of 1914–1918 brings about significant changes in Europe. Poland, free at last, after decades of partition by Germany, Austria-Hungary, and Tsarist Russia, hopes that it will gain access to the Baltic Sea. The Free City of Danzig (Gdańsk; German: Freie Stadt Danzig) is established in 1920 under the League of Nations' authority.

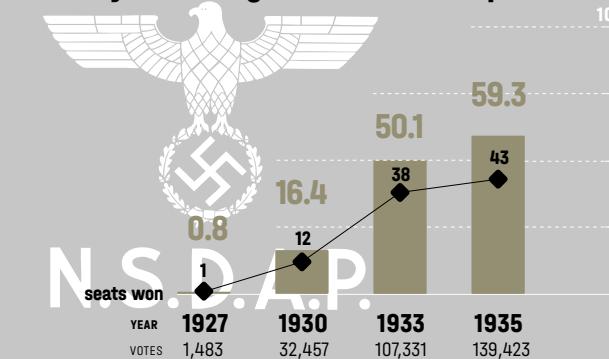


THE BATTLE OF WESTERPLATTE

•

1939

Poland is allowed to use the port facilities of Free City of Danzig, although the loading and unloading of Polish cargo is purposefully obstructed by German dockworkers. Therefore, Poland desperately needs its own sea port. In 1924 Westerplatte peninsula in Free City of Danzig is granted to Poland to serve as a railway hub and a cargo storage area with direct access to the sea. ← And so Westerplatte becomes the Polish enclave in the Nazi-dominated Free City of Danzig. Free City of Danzig inhabitants are predominantly



German; only about 10% of the city's population is Polish. The Poles are a tight-knit community – they have their offices, churches, schools, and sports clubs. ↗ ↘ Anti-Polish sentiment begins to manifest itself openly once the Nazis come to power in Germany. Repressions gradually escalate. Polish and Jewish businesses are boycotted, shops vandalized, and acts of physical violence become the order of the day. In 1939 Adolf Hitler, consumed as he is by hatred and prejudice, calls for Free City of Danzig to be reunited with Germany. ↗ It is almost a certainty that war will not be avoided.

← Emergence of Nazi Party in Free City of Danzig  
Parliamentary Elections



Houses adorned with swastika flags, Free City of Danzig, 1930s

