

THE CONSTITUTION OF THE UNITED STATES OF AMERICA

ARTICLE I

SECTION 1. All legislative Powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

SECTION 2. (a) The House of Representatives shall be composed of Members chosen every second Year by the People of the several States, and the Electors in each State shall have the Qualifications requisite for Electors of the most numerous Branch of the State Legislature.

(b) No Representative shall, when elected, be less than twenty five Years of Age, seven Years a Citizen of the United States, and, when elected, have been seven Years a Citizen of that State in which he shall be chosen. (c) Representatives and Electors may be chosen by the Legislature of a State until the People thereof shall have organized a regular Assembly to exercise those Powers.

(d) The Electors in each State shall have the Qualifications requisite for Electors of the most numerous Branch of the State Legislature. (e) No Person shall be a Representative who shall not, when elected, have attained to the Age of twenty five Years, and seven Years shall have elapsed since the Date of his becoming a Citizen of the United States, and he shall, when elected, have been seven Years a Citizen of that State in which he shall be chosen.

SECTION 3. (a) The Senate of the United States shall be composed of two Senators from each State, elected by the People of the State in which they so reside, for six Years, and each Senator shall have the Qualifications requisite for Electors of the most numerous Branch of the State Legislature.

(b) No Senator shall, when elected, be less than thirty Years of Age, seven Years a Citizen of the United States, and, when elected, have been two Years a Citizen of that State in which he shall be chosen. (c) The Electors in each State shall have the Qualifications requisite for Electors of the most numerous Branch of the State Legislature. (d) The Senate shall have the sole Power to try all Cases of Impeachment. (e) The Senate shall have the sole Power to confirm and reject all Appointments, made by the President, except those of Judges of the Supreme Court, and all Officers of the United States, whose Appointments are not herein provided for, and who are not otherwise provided for by Law.

SECTION 4. (a) The Times, Places and Manner of holding the Elections of Senators and Representatives, shall be prescribed in each State by the Legislature thereof; but the Congress may, at any time, by Law, make or alter such Regulations, except as to the Places of Elections.

SECTION 5. (a) The Congress shall assemble on the first Monday after the first of January in every Year.

SECTION 6. (a) The Senators and Representatives shall receive a Compensation for their Services, to be ascertained from Time to Time by a Law passed by the Congress.

(b) The Congress shall assemble at least once in every Year, and such Meeting shall be held in the City of New York, until they shall have provided by Law for the Place of the same. (c) The Congress shall have Power to expel a Member for Misbehavior.

SECTION 7. (a) All bills for raising Revenue shall originate in the House of Representatives; but the Senate may propose or concur with Amendments as to the Form of such Bills.

(b) No bill shall be passed for raising Revenue unless it contains appropriate provisions for raising Revenue. (c) No bill shall be passed for raising Revenue unless it contains appropriate provisions for raising Revenue.

SECTION 8. (a) The Congress shall have Power to lay and collect Taxes, Duties, Imposts and Excises, to pay the Debts and provide for the common Defence and general Welfare of the United States; but all Duties, Imposts and Excises shall be uniform throughout the United States.

(b) The Congress shall have Power to borrow Money on the Credit of the United States, to regulate Commerce with foreign Nations, among the several States, and with the Indian Tribes; to establish an uniform Rule of Naturalization, to establish an uniform System of Weights and Measures, to coin Money, to regulate the Value thereof, and of foreign Coins, to provide for the Punishment of counterfeiting the Coin and Securities of the United States, to define and punish Offences against the Law of Nations, to define and punish Piracies and Offences against Commerce on the Sea and in any Port, Haven or River, to define and punish Offences against the Commerce with foreign Nations, to regulate the Commerce with the Indian Tribes, to exercise exclusive Legislation over all Districts ceded to the United States by other States, over Territory acquired by Purchase, and over all Places purchased by the United States, to exercise exclusive Legislation in and over the District of Columbia, to exercise all Powers which may by Treaty or Law be vested in the Congress by the States which at the Time of the Adoption of this Constitution were Members of the Union, to declare War, to grant Letters of Marque and Reprisal, to raise and support Armies, but no Appropriation of Money to that Use shall be for a longer Term than two Years, to raise and support a Navy, to make and fix the Rule and Regulate the Discipline of the Army, to make and fix the Rule and Regulate the Discipline of the Navy, to make and fix the Rule and Regulate the Discipline of the Militia of the United States, to provide for calling forth the Militia to execute the Laws of the Union, to suppress Insurrections, and to repel Invasions, to provide for organizing, arming and disciplining the Militia, and for governing such Part of them as may be employed in the Service of the United States, to provide for calling forth the Militia to execute the Laws of the Union, to suppress Insurrections, and to repel Invasions, to provide for organizing, arming and disciplining the Militia, and for governing such Part of them as may be employed in the Service of the United States, to provide for calling forth the Militia to execute the Laws of the Union, to suppress Insurrections, and to repel Invasions, to provide for organizing, arming and disciplining the Militia, and for governing such Part of them as may be employed in the Service of the United States.

SECTION 9. (a) The Migration or Importation of Persons, other than Indians, not bound by Contract to Servitude, shall not be Prohibited by any State.

(b) The Congress shall have Power to regulate Commerce with foreign Nations, among the several States, and with the Indian Tribes; to exercise exclusive Legislation over all Districts ceded to the United States by other States, over Territory acquired by Purchase, and over all Places purchased by the United States, to exercise exclusive Legislation in and over the District of Columbia, to exercise all Powers which may by Treaty or Law be vested in the Congress by the States which at the Time of the Adoption of this Constitution were Members of the Union, to declare War, to grant Letters of Marque and Reprisal, to raise and support Armies, but no Appropriation of Money to that Use shall be for a longer Term than two Years, to raise and support a Navy, to make and fix the Rule and Regulate the Discipline of the Army, to make and fix the Rule and Regulate the Discipline of the Navy, to make and fix the Rule and Regulate the Discipline of the Militia of the United States, to provide for calling forth the Militia to execute the Laws of the Union, to suppress Insurrections, and to repel Invasions, to provide for organizing, arming and disciplining the Militia, and for governing such Part of them as may be employed in the Service of the United States.

1. The text of the Constitution is reproduced here in its original form, with the original spelling and punctuation.

Find the derivative of the composite function $f \circ g$ with respect to x if $f(x) = x^2 + 3x$ and $g(x) = x^2$.

$f \circ g$ is the composite function $f \circ g$ which means $f(g(x))$. So, $f \circ g(x) = f(x^2) = (x^2)^2 + 3(x^2) = x^4 + 3x^2$.

Example 3: Find the derivative of $f \circ g$ if $f(x) = x^2 + 3x$ and $g(x) = x^2$.

Sol: $f(x) = x^2 + 3x$

$g(x) = x^2$

$f \circ g(x) = f(g(x)) = f(x^2) = (x^2)^2 + 3(x^2) = x^4 + 3x^2$

$(f \circ g)'(x) = \frac{d}{dx}(x^4 + 3x^2)$

$= 4x^3 + 6x$ (Differentiate with respect to x)

$(f \circ g)'(x) = 4x^3 + 6x$

Example 4: Find the derivative of $f \circ g$ if $f(x) = x^2 + 3x$ and $g(x) = x^2$.

Sol: $f(x) = x^2 + 3x$ and $g(x) = x^2$

$$f \circ g(x) = f(g(x)) = f(x^2) = (x^2)^2 + 3(x^2) = x^4 + 3x^2$$

$(f \circ g)'(x) = \frac{d}{dx}(x^4 + 3x^2)$

$$= 4x^3 + 6x$$

Example 5:

Sol: $f(x) = x^2 + 3x$

$g(x) = x^2$

Example 6: Find the derivative of $f \circ g$ if $f(x) = x^2 + 3x$ and $g(x) = x^2$.

Sol: $f(x) = x^2 + 3x$ and $g(x) = x^2$

Example 7: Find the derivative of $f \circ g$ if $f(x) = x^2 + 3x$ and $g(x) = x^2$.

Example 8: Find the derivative of $f \circ g$ if $f(x) = x^2 + 3x$ and $g(x) = x^2$.

Example 9: Find the derivative of $f \circ g$ if $f(x) = x^2 + 3x$ and $g(x) = x^2$.

Sol: $f(x) = x^2 + 3x$

