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CLEP College Mathematics Study Guide

2020-2021

A Comprehensive Review and Step-By-Step Guide to Preparing for the CLEP College Mathematics

Recommended by Test Prep Experts

Reza Nazari & Ava Ross

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By

Reza Nazari & Ava Ross

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ISBN: 978-1-64612-395-7

Published by: Effortless Math Education

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Description

CLEP College Mathematics Study Guide, which reflects the 2020 - 2021 test guidelines, is designed by top CLEP College Mathematics instructors and test prep experts to help test takers succeed on the CLEP College Mathematics Test. The updated version of this comprehensive CLEP College Mathematics preparation book includes Math lessons, extensive exercises, sample CLEP College Mathematics questions, and quizzes with answers and detailed solutions to help you hone your math skills, overcome your exam anxiety, boost your confidence—and do your best to ace the CLEP College Mathematics exam on test day. Upon completion of this perfect CLEP College Mathematics prep book, you will have a solid foundation and sufficient practice to ace the CLEP College Mathematics test.

Not only does this all-inclusive prep book offer everything you will ever need to prepare for the CLEP College Mathematics test, but it also contains two complete and realistic CLEP College Mathematics tests that reflect the format and question types on the CLEP College Mathematics to help you check your exam-readiness and identify where you need more practice.

CLEP College Mathematics Study Guide contains many exciting and unique features to help you prepare for the CLEP College Mathematics test, including:

- ✓ Content 100% aligned with the 2020 CLEP College Mathematics ® test
- ✓ Written by CLEP College Mathematics instructors and test experts
- ✓ Complete coverage of all CLEP College Mathematics concepts and topics which you will be tested
- ✓ Step-by-step guide for all CLEP College Mathematics topics
- ✓ Abundant Math skill building exercises to help test-takers approach different question types that might be unfamiliar to them
- ✓ Exercises on different CLEP College Mathematics topics such as integers, percent, equations, polynomials, exponents and radicals
- ✓ 2 full-length practice tests (featuring new question types) with detailed answers

This CLEP College Mathematics prep book and other Effortless Math Education books are used by thousands of students each year to help them review core content areas, brush-up in math, discover their strengths and weaknesses, and achieve their best scores on the CLEP College Mathematics test.

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Name: ……	**Date:** ……

Topic	**Adding and Subtracting Decimals - Answers**	
Notes	✓ Line up the numbers. ✓ Add zeros to have same number of digits for both numbers if necessary. ✓ Add or subtract using column addition or subtraction.	
Examples	***Add***. $2.6 + 5.33 =$ First line up the numbers: $\begin{array}{r} 2.6 \\ +\ 5.33 \\ \hline \end{array}$ →Add zeros to have same number of digits for both numbers. $\begin{array}{r} .60 \\ +\ 5.33 \\ \hline \end{array}$ → Start with the hundredths place. $0 + 3 = 2$, $\begin{array}{r} 2.60 \\ +\ 5.33 \\ \hline 3 \end{array}$ → Continue with tenths place. $6 + 3 = 9$, $\begin{array}{r} .60 \\ +\ 5.33 \\ \hline .93 \end{array}$ → Add the ones place. $2 + 5 = 7$, $\begin{array}{r} 2.60 \\ +\ 5.33 \\ \hline 7.93 \end{array}$ ***Subtract***. $4.79 - 3.13 =$ $\begin{array}{r} 4.79 \\ -\ 3.13 \\ \hline \end{array}$ Start with the hundredths place. $9 - 3 = 6$, $\begin{array}{r} .79 \\ -\ 3.13 \\ \hline 6 \end{array}$, continue with tenths place. $7 - 1 = 6$, $\begin{array}{r} .79 \\ -\ 3.13 \\ \hline .66 \end{array}$, subtract the ones place. $4 - 3 = 1$, $\begin{array}{r} 4.79 \\ -\ 3.13 \\ \hline 1.66 \end{array}$	
Your Turn!	1) $48.13 + 20.15 = 68.28$	2) $78.14 - 65.19 = 12.95$
	3) $38.19 + 24.18 = 62.37$	4) $57.26 - 43.54 = 13.72$
	5) $27.89 + 46.13 = 74.02$	6) $49.65 - 32.78 = 16.87$

Name: ……	**Date:** ……

Topic	**Multiplying and Dividing Decimals**	
Notes	For Multiplication: ✓ Ignore the decimal point and set up and multiply the numbers as you do with whole numbers. ✓ Count the total number of decimal places in both factors. ✓ Place the decimal point in the product. For Division: ✓ If the divisor is not a whole number, move decimal point to right to make it a whole number. Do the same for dividend. ✓ Divide similar to whole numbers.	
Examples	***Find the product***. $1.2 \times 2.3 =$ Set up and multiply the numbers as you do with whole numbers. Line up the numbers: $\overset{12}{\times\ 23}$ → Multiply: $\frac{\overset{12}{\times 23}}{276}$ → Count the total number of decimal places in both of the factors. There are two decimal digits. Then: $1.2 \times 2.3 = 2.76$ ***Find the quotient.*** $5.6 \div 0.8 =$ The divisor is not a whole number. Multiply it by 10 to get 8. → $0.8 \times 10 = 8$ Do the same for the dividend to get 56 → $5.6 \times 10 = 56$ Now, divide: $56 \div 8 = 7$. The answer is 7.	
Your Turn!	1) $1.13 \times 0.7 =$	2) $48.8 \div 8 =$
	3) $0.9 \times 0.68 =$	4) $66.8 \div 0.2 =$
	5) $0.18 \times 0.5 =$	6) $37.2 \div 100 =$

Name: ……	**Date:** ……

Topic	**Multiplying and Dividing Decimals - Answers**	
Notes	For Multiplication: ✓ Ignore the decimal point and set up and multiply the numbers as you do with whole numbers. ✓ Count the total number of decimal places in both factors. ✓ Place the decimal point in the product. For Division: ✓ If the divisor is not a whole number, move decimal point to right to make it a whole number. Do the same for dividend. ✓ Divide similar to whole numbers.	
Examples	***Find the product***. $1.2 \times 2.3 =$ Set up and multiply the numbers as you do with whole numbers. Line up the numbers: $\overset{12}{\times 23}$ → Multiply: $\frac{\overset{12}{\times 23}}{276}$ → Count the total number of decimal places in both of the factors. There are two decimal digits. Then: $1.2 \times 2.3 = 2.76$ ***Find the quotient***. $5.6 \div 0.8 =$ The divisor is not a whole number. Multiply it by 10 to get 8. → $0.8 \times 10 = 8$ Do the same for the dividend to get 56 → $5.6 \times 10 = 56$ Now, divide: $56 \div 8 = 7$. The answer is 7.	
Your Turn!	1) $1.13 \times 0.7 = 0.791$	2) $48.8 \div 8 = 6.1$
	3) $0.9 \times 0.68 = 0.612$	4) $66.8 \div 0.2 = 334$
	5) $0.18 \times 0.5 = 0.09$	6) $37.2 \div 100 = 0.372$

Name: ……..	**Date:** ……

Topic	**Adding and Subtracting Integers**	
Notes	✓ Integers include: zero, counting numbers, and the negative of the counting numbers. $\{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$ ✓ Add a positive integer by moving to the right on the number line. ✓ Add a negative integer by moving to the left on the number line. Subtract an integer by adding its opposite.	
Examples	***Solve***. $(4) - (-8) =$ Keep the first number and convert the sign of the second number to its opposite. (change subtraction into addition. Then: $(4) + 8 = 12$ ***Solve***. $42 + (12 - 26) =$ First subtract the numbers in brackets, $12 - 26 = -14$ Then: $42 + (-14) =$ → change addition into subtraction: $42 - 14 = 28$	
Your Turn!	1) $-(15) + 12 =$	2) $(-2) + (-10) + 18 =$
	3) $(-13) + 7 =$	4) $3 - (-7) + 14 =$
	5) $(-7) + (-8) =$	6) $16 - (-4 + 8) =$
	7) $4 + (-15) + 2 =$	8) $-(22) - (-4) + 8 =$

Name: ……	**Date:** ……

Topic	**Adding and Subtracting Integers - Answers**	
Notes	✓ Integers include: zero, counting numbers, and the negative of the counting numbers. $\{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$ ✓ Add a positive integer by moving to the right on the number line. ✓ Add a negative integer by moving to the left on the number line. Subtract an integer by adding its opposite.	
Examples	***Solve***. $(4) - (-8) =$ Keep the first number and convert the sign of the second number to its opposite. (change subtraction into addition. Then: $(4) + 8 = 12$ ***Solve.*** $42 + (12 - 26) =$ First subtract the numbers in brackets, $12 - 26 = -14$ Then: $42 + (-14) =$ → change addition into subtraction: $42 - 14 = 28$	
Your Turn!	1) $-(15) + 12 = -3$	2) $(-2) + (-10) + 18 = 6$
	3) $(-13) + 7 = -6$	4) $3 - (-7) + 14 = 24$
	5) $(-7) + (-8) = -15$	6) $16 - (-4 + 8) = 12$
	7) $4 + (-15) + 2 = -9$	8) $(-22) - (-4) + 8 = -10$

Name: ……..	**Date:** ……

Topic	**Multiplying and Dividing Integers**	
Notes	Use following rules for multiplying and dividing integers: ✓ (negative) × (negative) = positive ✓ (negative) ÷ (negative) = positive ✓ (negative) × (positive) = negative ✓ (negative) ÷ (positive) = negative ✓ (positive) × (positive) = positive ✓ (positive) ÷ (negative) = negative	
Examples	***Solve***. $2 \times (14 - 17) =$ First subtract the numbers in brackets, $14 - 17 = -3 \rightarrow (2) \times (-3) =$ Now use this rule: (positive) × (negative) = negative $(2) \times (-3) = -6$ ***Solve***. $(-7) + (-36 \div 4) =$ First divide -36 by 4 , the numbers in brackets, using this rule: (negative) ÷ (positive) = negative Then: $-36 \div 4 = -9$. Now, add -7 and -9: $(-7) + (-9) = -7 - 9 = -16$	
Your Turn!	1) $(-7) \times 6 =$	2) $(-63) \div (-7) =$
	3) $(-11) \times (-3) =$	4) $81 \div (-9) =$
	5) $(15 - 12) \times (-7) =$	6) $(-12) \div (3) =$
	7) $4 \times (-9) =$	8) $(8) \div (-2) =$

Name: ……	**Date:** ……

Topic	**Multiplying and Dividing Integers - Answers**	
Notes	Use following rules for multiplying and dividing integers: ✓ (negative) × (negative) = positive ✓ (negative) ÷ (negative) = positive ✓ (negative) × (positive) = negative ✓ (negative) ÷ (positive) = negative ✓ (positive) × (positive) = positive ✓ (positive) ÷ (negative) = negative	
Examples	***Solve***. $2 \times (14 - 17) =$ First subtract the numbers in brackets, $14 - 17 = -3 \rightarrow (2) \times (-3) =$ Now use this rule: (positive) × (negative) = negative $(2) \times (-3) = -6$ ***Solve.*** $(-7) + (-36 \div 4) =$ First divide -36 by 4 , the numbers in brackets, using this rule: (negative) ÷ (positive) = negative Then: $-36 \div 4 = -9$. Now, add -7 and -9: $(-7) + (-9) = -7 - 9 = -16$	
Your Turn!	1) $(-7) \times 6 = -42$	2) $(-63) \div (-7) = 9$
	3) $(-11) \times (-3) = 33$	4) $81 \div (-9) = -9$
	5) $(15 - 12) \times (-7) = -21$	6) $(-12) \div (3) = -4$
	7) $4 \times (-9) = -36$	8) $(8) \div (-2) = -4$

Name: ……..	**Date:** ……

Topic	**Order of Operation**	
Notes	When there is more than one math operation, use PEMDAS: (to memorize this rule, remember the phrase "Please Excuse My Dear Aunt Sally") ✓ Parentheses ✓ Exponents ✓ Multiplication and Division (from left to right) ✓ Addition and Subtraction (from left to right)	
Examples	***Calculate***. $(18-26)\div(2^4\div 4)=$ First simplify inside parentheses: $(-8)\div(16\div 4)=(-8)\div(4)$ Then: $(-8)\div(4)=-2$ ***Solve***. $(-5\times 7)-(18-3^2)=$ First calculate within parentheses: $(-5\times 7)-(18-3^2)=(-35)-(18-9)$ Then: $(-35)-(18-9)=-35-9=-44$	
Your Turn!	1) $(11\times 4)\div(5+6)=$	2) $(30\div 5)+(17-8)=$
	3) $(-9)+(5\times 6)+14=$	4) $(-10\times 5)\div(2^2+1)=$
	5) $[-16(32\div 2^3)]\div 8=$	6) $(-7)+(72\div 3^2)+12=$
	7) $[16(32\div 2^3)]-4^2=$	8) $4^3+(-5\times 2^5)+5=$

Name: ……	**Date:** ……

Topic	**Order of Operation - Answers**	
Notes	When there is more than one math operation, use PEMDAS: (to memorize this rule, remember the phrase "Please Excuse My Dear Aunt Sally") ✓ Parentheses ✓ Exponents ✓ Multiplication and Division (from left to right) ✓ Addition and Subtraction (from left to right)	
Examples	***Calculate.*** $(18-26)\div(2^4\div 4)=$ First simplify inside parentheses: $(-8)\div(16\div 4)=(-8)\div(4)$ Then: $(-8)\div(4)=-2$ ***Solve***. $(-5\times 7)-(18-3^2)=$ First calculate within parentheses: $(-5\times 7)-(18-3^2)=(-35)-(18-9)$ Then: $(-35)-(18-9)=-35-9=-44$	
Your Turn!	1) $(11\times 4)\div(5+6)=4$	2) $(30\div 5)+(17-8)=15$
	3) $(-9)+(5\times 6)+14=$ 35	4) $(-10\times 5)\div(2^2+1)=-10$
	5) $[-16(32\div 2^3)]\div 8=$ -8	6) $(-7)+(72\div 3^2)+12=13$
	7) $[16(32\div 2^3)]-4^2=$ 48	8) $4^3+(-5\times 2^5)+5=-91$