The Ultimate Step by Step Guide to Preparing for the PSAT Math Test



PSAT Math 2022

for Beginners

Reza Nazari

✓ Recommended by Test Prep Experts

PSAT MATH FOR BEGINNERS

The Ultimate Step by Step Guide to Preparing for the PSAT Math Test

By

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ISBN: 978-1-64612-934-8

Published by: **Effortless Math Education**

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Welcome to

PSAT Math Prep 2022



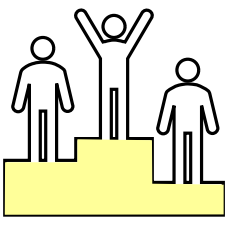


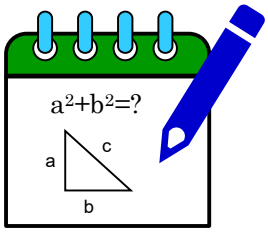
Thank you for choosing Effortless Math for your PSAT Math test preparation!

It's a remarkable move you are taking, one that shouldn't be diminished in any capacity. That's why you need to use every tool possible to ensure you succeed on the test with the highest possible score, and this extensive study guide is one such tool.

If math has never been a strong subject for you, **don't worry**! This book will help you prepare for (and even ACE) the PSAT test's math section. As test day draws nearer, effective preparation becomes increasingly more important. Thankfully, you have this comprehensive study guide to help you get ready for the test. With this guide, you can feel confident that you will be more than ready for the PSAT Math test when the time comes.

First and foremost, it is important to note that this book is a study guide and not a textbook. It is best read from cover to cover. Every lesson of this "self-guided math book" was carefully developed to ensure that you are making the most effective use of your time while preparing for the test. This up-to-date guide reflects the 2022 test guidelines and will put you on the right track to hone your math skills, overcome exam anxiety, and boost your confidence, so that you can have your best to succeed on the PSAT Math test.





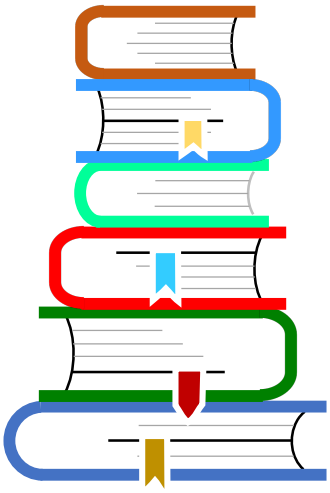
This study guide will:

- ☑ Explain the format of the PSAT Math test.
- ☑ Describe specific test-taking strategies that you can use on the test.
- ☑ Provide PSAT Math test-taking tips.
- ☑ Review all PSAT Math concepts and topics you will be tested on.
- ☑ Help you identify the areas in which you need to concentrate your study time.
- ☑ Offer exercises that help you develop the basic math skills you will learn in each section.
- ☑ Give **2 realistic and full-length practice tests** (featuring new question types) with detailed answers to help you measure your exam readiness and build confidence.

This resource contains everything you will ever need to succeed on the PSAT Math test. You'll get in-depth instructions on every math topic as well as tips and techniques on how to answer each question type. You'll also get plenty of practice questions to boost your test-taking confidence.

In addition, in the following pages you'll find:

- **How to Use This Book Effectively** – This section provides you with step-by-step instructions on how to get the most out of this comprehensive study guide.
- **How to study for the PSAT Math Test** – A six-step study program has been developed to help you make the best use of this book and prepare for your PSAT Math test. Here you'll find tips and strategies to guide



Multiplying and Dividing Integers

Use the 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:

Example 1. Solve. $3 \times (-4) =$

Solution: Use this rule: (positive) × (negative) = negative.
Then: $(3) \times (-4) = -12$

Example 2. Solve. $(-3) + (-24 \div 3) =$

Solution: First, divide −24 by 3, the numbers in brackets, use this rule: (negative) ÷ (positive) = negative. Then: $-24 \div 3 = -8$
$(-3) + (-24 \div 3) = (-3) + (-8) = -3 - 8 = -11$

Example 3. Solve. $(12 - 15) \times (-2) =$

Solution: First, subtract the numbers in brackets,
$12 - 15 = -3 \rightarrow (-3) \times (-2) =$
Now use this rule: (negative) × (negative) = positive → $(-3) \times (-2) = 6$

Example 4. Solve. $(12 - 8) \div (-4) =$

Solution: First, subtract the numbers in brackets,
$12 - 8 = 4 \rightarrow (4) \div (-4) =$
Now use this rule: (positive) ÷ (negative) = negative → $(4) \div (-4) = -1$

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Find more at

Order of Operations

- In Mathematics, "operations" are addition, subtraction, multiplication, division, exponentiation (written as b^n), and grouping.
- When there is more than one math operation in an expression, 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:

Example 1. Calculate. $(2 + 6) \div (2^2 \div 4) =$

Solution: First, simplify inside parentheses:
$(8) \div (4 \div 4) = (8) \div (1)$, Then: $(8) \div (1) = 8$

Example 2. Solve. $(6 \times 5) - (14 - 5) =$

Solution: First, calculate within parentheses: $(6 \times 5) - (14 - 5) = (30) - (9)$, Then: $(30) - (9) = 21$

Example 3. Calculate. $-4[(3 \times 6) \div (3^2 \times 2)] =$

Solution: First, calculate within parentheses:
$-4[(18) \div (9 \times 2)] = -4[(18) \div (18)] = -4[1]$
multiply -4 and 1. Then: $-4[1] = -4$

Example 4. Solve. $(28 \div 7) + (-19 + 3) =$

Solution: First, calculate within parentheses:
$(28 \div 7) + (-19 + 3) = (4) + (-16)$ Then: $(4) - (16) = -12$

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Integers and Absolute Value

- The absolute value of a number is its distance from zero, in either direction, on the number line. For example, the distance of 9 and -9 from zero on number line is 9.
- The absolute value of an integer is the numerical value without its sign. (negative or positive)
- The vertical bar is used for absolute value as in $|x|$.
- The absolute value of a number is never negative; because it only shows, "how far the number is from zero".

Examples:

Example 1. Calculate. $|14-2|\times 5=$

Solution: First, solve $|14-2|$, $\rightarrow |14-2|=|12|$, the absolute value of 12 is 12, $|12|=12$ Then: $12\times 5=60$

Example 2. Solve. $\frac{|-24|}{4}\times|5-7|=$

Solution: First, find $|-24|$, $\rightarrow$ the absolute value of -24 is 24,
Then: $|-24|=24$, $\frac{24}{4}\times|5-7|=$
Now, calculate $|5-7|$, $\rightarrow$ $|5-7|=|-2|$, the absolute value of -2 is 2. $|-2|=2$ then: $\frac{24}{4}\times 2=6\times 2=12$

Example 3. Solve. $|8-2|\times\frac{|-4\times 7|}{2}=$

Solution: First, calculate $|8-2|$,$\rightarrow |8-2|=|6|$, the absolute value of 6 is 6, $|6|=6$. Then: $6\times\frac{|-4\times 7|}{2}$
Now calculate $|-4\times 7|$, $\rightarrow$ $|-4\times 7|=|-28|$, the absolute value of -28 is 28, $|-28|=28$ Then: $6\times\frac{28}{2}=6\times 14=84$

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Chapter 3: Practices

Find each sum or difference.

1) $-9 + 16 =$
2) $-18 - 6 =$
3) $-24 + 10 =$
4) $30 + (-5) =$
5) $15 + (-3) =$
6) $(-13) + (-4) =$
7) $25 + (3 - 10) =$
8) $12 - (-6 + 9) =$
9) $5 - (-2 + 7) =$
10) $(-11) + (-5 + 6) =$
11) $(-3) + (9 - 16) =$
12) $(-8) - (13 + 4) =$
13) $(-7 + 9) - 39 =$
14) $(-30 + 6) - 14 =$
15) $(-5 + 9) + (-3 + 7) =$
16) $(8 - 19) - (-4 + 12) =$
17) $(-9 + 2) - (6 - 7) =$
18) $(-12 - 5) - (-4 - 14) =$

Solve.

19) $3 \times (-6) =$
20) $(-32) \div 4 =$
21) $(-5) \times 4 =$
22) $(25) \div (-5) =$
23) $(-72) \div 8 =$
24) $(-2) \times (-6) \times 5 =$
25) $(-2) \times 3 \times (-7) =$
26) $(-1) \times (-3) \times (-5) =$
27) $(-2) \times (-3) \times (-6) =$
28) $(-12 + 3) \times (-5) =$
29) $(-3 + 4) \times (-11) =$
30) $(-9) \times (6 - 5) =$
31) $(-3 - 7) \times (-6) =$
32) $(-7 + 3) \times (-9 + 6) =$
33) $(-15) \div (-17 + 12) =$
34) $(-3 - 2) \times (-9 + 7) =$
35) $(-15 + 31) \div (-2) =$
36) $(-64) \div (-16 + 8) =$

Evaluate each expression.

37) $3 + (2 \times 5) =$

38) $(5 \times 4) - 7 =$

39) $(-9 \times 2) + 6 =$

40) $(7 \times 3) - (-5) =$

41) $(-8) + (2 \times 7) =$

42) $(9 - 6) + (3 \times 4) =$

43) $(-19 + 5) + (6 \times 2) =$

44) $(32 \div 4) + (1 - 13) =$

45) $(-36 \div 6) - (12 + 3) =$

46) $(-16 + 5) - (54 \div 9) =$

47) $(-20 + 4) - (35 \div 5) =$

48) $(42 \div 7) + (2 \times 3) =$

49) $(28 \div 4) + (2 \times 6) =$

50) $2[(3 \times 3) - (4 \times 5)] =$

51) $3[(2 \times 8) + (4 \times 3)] =$

52) $2[(9 \times 3) - (6 \times 4)] =$

53) $4[(4 \times 8) \div (4 \times 4)] =$

54) $-5[(10 \times 8) \div (5 \times 8)] =$

Find the answers.

55) $|-5| + |7 - 10| =$

56) $|-4 + 6| + |-2| =$

57) $|-9| + |1 - 9| =$

58) $|-7| - |8 - 12| =$

59) $|9 - 11| + |8 - 15| =$

60) $|-7 + 10| - |-8 + 3| =$

61) $|-12 + 6| - |3 - 9| =$

62) $5 + |2 - 6| + |3 - 4| =$

63) $-4 + |2 - 6| + |1 - 9| =$

64) $|-6| \times |-7| + |2 - 8| =$

65) $|-12| \times |-3| + |4 - 28| =$

66) $|4 \times (-2)| \times |-9| =$

67) $|-3 \times 2| \times |-5| =$

68) $|3 - 12| - |-3 \times 7| =$

69) $|-9| + |-7 \times 5| =$

70) $|-11| + |-6 \times 4| =$

71) $|-4 \times 2 + 6| \times |-2 \times 8| =$

72) $|-1 \times 5 + 2| \times |-4| =$

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Chapter 3: Answers

1) 7
2) −24
3) −14
4) 25
5) 12
6) −17
7) 18
8) 9
9) 0
10) −10
11) −10
12) −25
13) −37
14) −38
15) 8
16) −19
17) −6
18) 1
19) −18
20) −8
21) −20
22) −5
23) −9
24) 60
25) 42
26) −15
27) −36
28) 45
29) −11
30) −9
31) 60
32) 12
33) 3
34) 10
35) −8
36) 8
37) 13
38) 13
39) −12
40) 26
41) 6
42) 15
43) −2
44) −4
45) −21
46) −17
47) −23
48) 12
49) 19
50) −22
51) 84
52) 6
53) 8
54) −10
55) 8
56) 4
57) 17
58) 3
59) 9
60) −2
61) 0
62) 10
63) 8
64) 48
65) 60
66) 72
67) 30
68) −12
69) 44
70) 35
71) 32
72) 12