

Montini Catholic High School
Basic Concepts needed to be successful in Algebra I

All students enrolled in Foundations of Algebra for the fall of 2022 will take a diagnostic exam the first week of school to assess their retention of basic concepts necessary to be successful this year. The results of this diagnostic will be used to help guide the needs of the class.

As you go through each topic, check your answer. If you are having difficulty, we have included different avenues for help:

- MCHS videos in the *2022 Summer Mathematics* schoology group. You can create a free schoology account using any valid email address. Once in schoology, you can add the group using access code **99WH-VP8Q-9RRH7** . Once in the group you will find video tutorials for the concepts covered in this packet.

Class of 2026 and transfer students, DO NOT use your montini email address to set up your Schoology account. Please use a personal email.

- Videos, examples, and practice problems via khanacademy.org (a free website)
- Any search engine on the internet
- Local library

Concepts Covered:

- A) Compare & order numbers
- B) Graph Integers on a number line
- C) Operations with integers
- D) Rounding Numbers
- E) Order of Operations

All problems are intended to be completed without the use of a calculator.

NO CALCULATOR. Answers should be expressed as simplified fractions, when necessary.

A) Compare & order numbers

<https://www.khanacademy.org/math/arithmic-home/arith-review-decimals/decimals-number-line/v/decimals-on-a-number-line>

<https://www.khanacademy.org/math/arithmic/fraction-arithmic/arith-review-fractions-on-the-number-line/v/fractions-on-a-number-line>

<https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-negative-numbers-add-and-subtract/cc-7th-add-negatives/v/number-line-3-exercise-example>

Order from least to greatest		
1) 8, -2, -6	2) 0.5, 3.2, 2.75	3) 9, -4, 0, 0.328
4) Your PE teacher asked you to run for specific time period. You ran 0.6 of the time. Two of your friends ran .83 and 0.452 of the time. Order the amount of time you and your friends ran from least to greatest.	5) -2, 12, -8, 5, -6, 1, -3, -4	6) -3.87, -3.85, -2.53, -2.94, 4.05, 4.26
Replace <input type="text"/> with <, >, or =		
7) $8 \text{ } \textcircled{\hspace{1cm}} \text{ } 3$	8) $-2 \text{ } \textcircled{\hspace{1cm}} \text{ } 8$	9) $1 + 3 \text{ } \textcircled{\hspace{1cm}} \text{ } 6 - 2$
10) $-24 \text{ } \textcircled{\hspace{1cm}} \text{ } -26$	11) $-4 \text{ } \textcircled{\hspace{1cm}} \text{ } 4$	

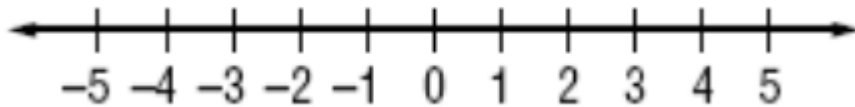
B. Graphing rational numbers on the number line

<https://www.khanacademy.org/math/arithmetic/fraction-arithmetic/arith-review-fractions-on-the-number-line/v/fractions-on-a-number-line>

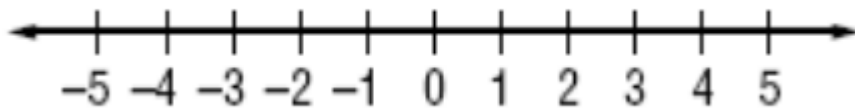
<https://www.khanacademy.org/math/arithmetic/fraction-arithmetic>

Graph and label the following numbers on the number line

12) A. -4 B. 2 C. 1 D. 0



13) A. 4 B. -3 C. 3 D. -5



C) Operations with integers

<https://www.khanacademy.org/math/arithmetic/arith-review-negative-numbers/arith-review-sub-neg-intro/v/adding-and-subtracting-negative-number-examples>

<https://www.khanacademy.org/math/arithmetic/arith-review-negative-numbers/arith-review-add-and-sub-integers/v/adding-integers-with-different-signs>

<https://www.khanacademy.org/math/arithmetic-home/negative-numbers/mult-divide-negatives/v/multiplying-negative-real-numbers>

Evaluate (write the value of each expression)

14) $-15 + 8$

15) $-10 - (-14)$

16) $7 - 18$

17) $-12 + (-23)$	18) $-13 + 53$	19) $3 - (-11) - 8$
20) $-60 \div -5$	21) $-9 \cdot 7$	22) $78 \div (-6)$
23) $(-4)(-8)$	24) $\frac{40}{-4}$	25) $\left(\frac{-30}{-10}\right)(-8)$

D. Rounding Numbers

<https://www.khanacademy.org/math/arithmetic/arith-decimals/arith-review-rounding-decimals/v/rounding-decimals>

Rounds numbers to the specified place		
26) Given 17.8256, identify the number in the: a) hundredths place b) ones place c) tenths place d) thousandths place		
27) Round to the nearest tenth 54.374	28) Round to the nearest whole number: 31.498	29) Round to the 3 rd digit after the decimal: 87.91764

I) Order of Operations

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-arith-prop/pre-algebra-order-of-operations/v/introduction-to-order-of-operations>

Evaluate each expression		
30) $(6 + 5) \cdot (8 - 6)$	60) $14 + 3(7 - 2) - 2 \cdot 5$	61) $3 \cdot (9 - 2) - 60$

62) $(2 + 8)^2 \div 4$	63) $6^2 + 8 \div 2$	64) $\frac{1}{2} \cdot 20 - 7 + 5$
65) $64 - 8(1 + 4)$	66) $\frac{10+18\div 9\cdot 2}{3+4}$	67) Without parentheses, the expression $8 + 30 \div 2 + 4$ equals 27. Place parentheses in the expression so that it equals 23.

The only way to
learn mathematics
is to
do mathematics!

-Paul Halmos

ANSWERS:

Part A:

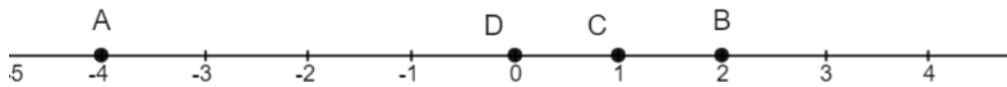
1. -6, -2, 8 2. 0.5, 2.75, 3.2 3. -4, 0, 0.328, 9 4. 0.452, 0.6, 0.83

5. -8, -6, -4, -3, -2, 1, 5, 12 6. -3.87, -3.85, -2.94, -2.53, 4.05, 4.26

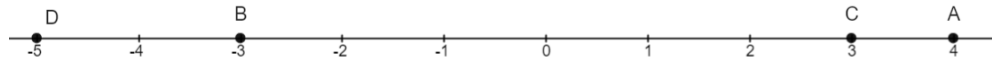
7. > 8. < 9. = 10. > 11. <

Part B:

12.



13.



Part C:

14. -7

15. 4

16. -11

17. -35

18. 40

19. 6

20. 12

21. -63

22. -13

23. 32

24. -10

25. -24

Part D:

26a. 2

26b. 7

26c. 8

26d. 5

27. 54.4

28. 32

29. 87.918

Part E:

30. 22

31. 19

61. -39

62. 25

63. 40

64. 8

65. 24

66. 2

67. $(8 + 30) \div 2 + 4$