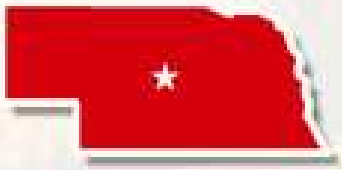
y = mx + b

x^2 + 5x + 6 = 0

NEBRASKA NSCAS

sqrt(x)

7th GRADE MATH



MADE RIDICULOUSLY SIMPLE

A Comprehensive 7th Grade Math Study Guide to Acing the NSCAS Test

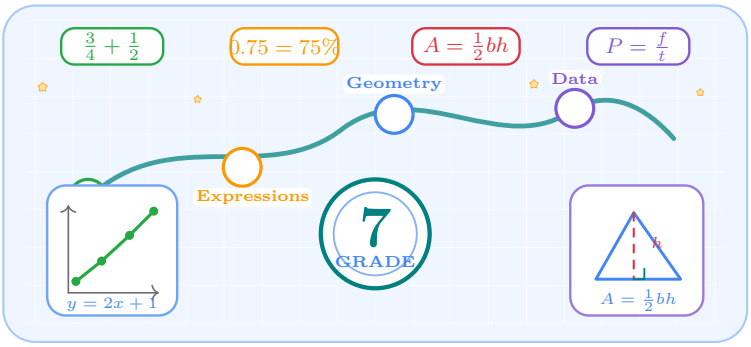
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7th Grade Math Made Ridiculously Simple

A Comprehensive 7th Grade Math Study Guide to Acing the NSCAS Test



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Grade 7 expectations grouped under 7.D.

- **7.D.1** Data Collection and Statistical Methods: Students will formulate statistical investigative questions, collect data, and organize data
- **7.D.2** Analyze Data and Interpret Results: Students will represent and analyze the data and interpret the results
- **7.D.3** Probability: Students will interpret and apply concepts of probability

7.G | Nebraska

Grade 7 expectations grouped under 7.G.

- **7.G.1** Attributes: Students will identify angle relationships and apply properties to determine angle measures
- **7.G.2** Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane
- **7.G.3** Measurement: Students will identify geometric attributes that create two- and three-dimensional shapes in order to perform measurements and apply formulas to find area and volume

7.N | Nebraska

Grade 7 expectations grouped under 7.N.

- **7.N.1** Numeric Relationships: Students will demonstrate, represent, and show relationships among rational numbers within the base-ten number system
- **7.N.2** Operations: Students will compute with rational numbers accurately
- **7.R.1** Proportional Relationships: Students will understand the concept of proportions, use language to describe the relationship between two quantities, and use proportions to solve authentic situations

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CHAPTER

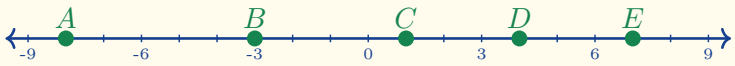
1

Integers and Absolute Value

1. Understanding Integers and the Number Line — 7.N.1
2. Absolute Value — 7.N.1
3. Comparing and Ordering Integers — 7.N.1
4. Adding Integers — 7.N.1
5. Subtracting Integers — 7.N.1
6. Multiplying Integers — 7.N.2
7. Dividing Integers — 7.N.2

feet. Order the animals from *shallowest* to *deepest* depth. How much deeper is the sperm whale than the shark? _____

18. Five points are plotted on the number line shown here. Identify the integer at each point, then list the points in order from least to greatest. Which point has the greatest absolute value?



_____

1.4 Adding Integers 7.N.1

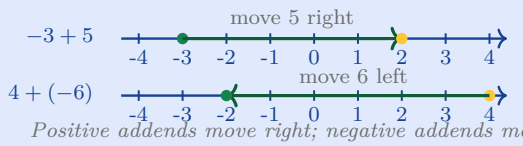
Think of adding integers as combining movements on a number line—or combining gains and losses in everyday life. Here is the key: when both numbers share the same sign, they move in the same direction, so you add the absolute values and keep that sign. When the signs are different, the numbers pull in opposite directions; you subtract the smaller absolute value from the larger one and keep the sign of whichever was stronger. You will also meet **zero pairs** (additive inverses), which show why a positive and its matching negative cancel out completely. Master these two rules and integer addition will feel natural every time.

Key Concepts & Quick Review

Same signs: Add the absolute values; keep the common sign. **Example:** $(-5)+(-8)=-(5+8)=-13$

Different signs: Subtract the smaller $|\cdot|$ from the larger; keep the sign of the larger $|\cdot|$.
Example: $(-9)+4=-(9-4)=-5$

Additive inverse: $a+(-a)=0$ **Identity:** $a+0=a$



Positive addends move right; negative addends move left.

Scan Me

Examples

① Evaluate $(-13) + 7$.

Think It Through: The signs are different, so subtract the smaller absolute value from the larger one. That gives $13 - 7 = 6$. Now decide the sign by looking at which number has the larger absolute value. Since 13 is larger than 7, the negative number wins. So the sum is -6.

Answer: -6

② A hiker starts at 240 feet above sea level, descends 380 feet, then climbs back up 95 feet. What is the hiker's final elevation?

Think It Through: Translate the changes into integers: $240 + (-380) + 95$. First combine 240 and -380. Because the signs are different, subtract $380 - 240 = 140$ and keep the sign of the larger absolute value, which is negative, so the result is -140. Then add 95: $-140 + 95 = -45$. The final elevation is -45 feet, which means 45 feet below sea level.

Answer: -45 *feet*

Practice Problems

Find each sum.

1. $5 + (-8) =$ _____

2. $(-6) + (-9) =$ _____

3. $(-12) + 7 =$ _____

4. $(-3) + 15 =$ _____

5. $(-14) + (-6) =$ _____

6. $8 + (-8) =$ _____

7. $(-25) + 13 =$ _____

8. $(-9) + (-11) =$ _____

9. $17 + (-24) =$ _____

10. $(-30) + 45 =$ _____

11. $(-7) + (-7) + 4 =$ _____

12. $12 + (-5) + (-9) =$ _____

13. $(-20) + (-15) + 30 =$ _____

14. $(-6) + 13 + (-4) =$ _____

15. $36 + (-49) =$ _____

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Study Tips

- When adding a long list of integers, group positives together and negatives together first; then combine the two totals.
- Opposite integers cancel: $(-7) + 7 = 0$. Look for zero pairs to simplify quickly.
- The sign of the answer matches the sign of the integer with the **larger** absolute value.

Word Problems

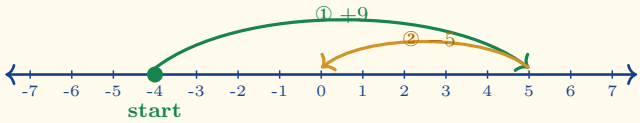
16. During a single football drive, a team gains 14 yards on the first play, loses 19 yards on the second play, gains 8 yards on the third play, and loses 6 yards on the fourth play. Write an addition expression using integers to represent the total yardage change, and then find the result. Is the team ahead of or behind their starting position, and by how many yards?

_____

17. Kenji starts the week with \$15 in his account. He deposits \$30 on Monday, withdraws \$48 on Tuesday, deposits \$12 on Wednesday, and withdraws \$22 on Thursday. Write his balance after each transaction as an addition expression, and determine whether his account is positive or negative at the end of Thursday. If negative, how much does he owe?

_____

18. This number line shows two "jumps." The bug starts at -4, hops $+9$ along arrow ①, and then hops -5 along arrow ②. Write the addition expression for the bug's final position and find where the bug lands.



_____

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