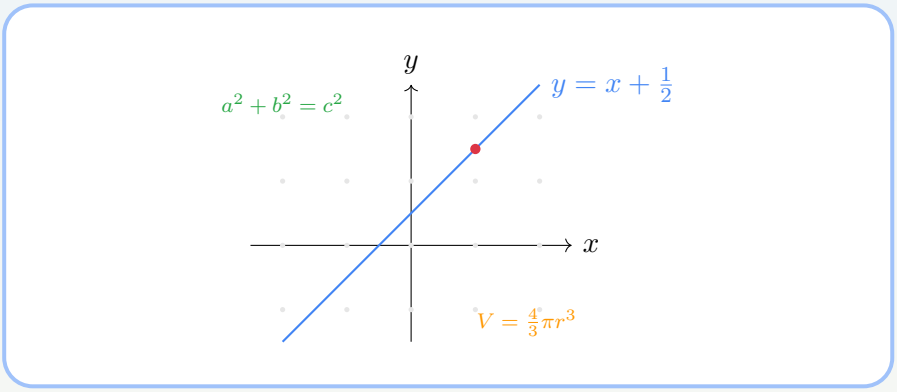
North Carolina EOG
8th Grade Math Workbook

Comprehensive Practice, Challenging Exercises, and Strategic Guidance for Complete Test-Day Confidence



Reza Nazari

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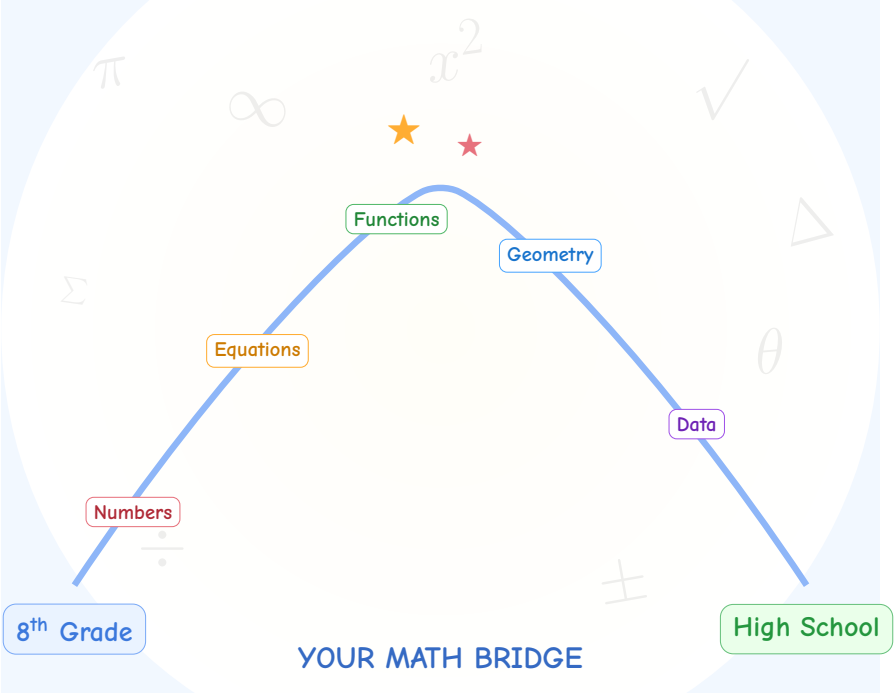
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Welcome, 8th Grader!

The Bridge Between Middle School and High School Starts Here



Dear Eighth Grader,

Welcome! This is *your* year. Everything you have built so far — working with fractions, decimals, ratios, and basic geometry — has been preparing you for this moment. Eighth-grade math is where all of those skills come together and open the door to high school and beyond.

NC.8.SP.2	Model the relationship between bivariate quantitative data to:
NC.8.SP.3	Use the equation of a linear model to solve problems in the context of bivariate quantitative data, interpreting the slope and y-intercept
NC.8.SP.4	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table

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CHAPTER

1

Real Numbers & Number Sense

1. Rational and Irrational Numbers NC.8.NS, NC.8.NS.1
2. Turning Repeating Decimals into Fractions NC.8.NS, NC.8.NS.1
3. Estimating Irrational Numbers NC.8.NS, NC.8.NS.2
4. Estimating Expressions with Irrational Numbers NC.8.NS, NC.8.NS.1

★ Chapter 1 Answer Key ★

Real Numbers & Number Sense

Topic 1 • Rational and Irrational Numbers

1) 3
2) 7
3) -12
4) Rational
5) Irrational
6) Irrational
7) Rational
8) Irrational
9) Rational
10) Irrational
11) Irrational
12) 13
13) Irrational
14) Yes
15) Irrational
16) No
17) Rational; 8 ft
18) 4 rational
19) False

Topic 2 • Turning Repeating Decimals into Fractions

1) $\frac{5}{9}$
2) $\frac{2}{9}$
3) $\frac{8}{9}$
4) 1
5) $\frac{1}{9}$
6) $\frac{2}{3}$
7) $\frac{5}{11}$
8) $\frac{3}{11}$
9) $\frac{2}{11}$
10) $\frac{7}{11}$
11) $\frac{1}{11}$
12) $\frac{6}{11}$
13) $\frac{1}{7}$
14) $\frac{1}{6}$
15) 36 pieces
16) Yes—the repeating decimal *is* the fraction $\frac{8}{11}$
17) $0.\overline{6} = \frac{2}{3}$; total $= \frac{2}{3} \times 5 = \frac{10}{3} = 3\frac{1}{3}$ cups
18) Both fractions are equal, but Eddie's is fully simplified: $\frac{5}{11}$
19) $\frac{1}{3} + \frac{2}{3} + \frac{5}{9} = \frac{14}{9} = 1\frac{5}{9}$ minutes

Topic 3 • Estimating Irrational Numbers

1) 3 and 4
2) 4 and 5
3) 5 and 6
4) 7 and 8
5) 8 and 9
6) 9 and 10
7) ≈ 2.4
8) ≈ 3.7
9) ≈ 5.5
10) ≈ 7.2
11) $\sqrt{3}$, 2, $\sqrt{5}$
12) $\sqrt{11}$
13) $8 < \sqrt{75} < 9$; closer to 9 since $\sqrt{75} \approx 8.66$
14) Drone A; $\sqrt{60} \approx 7.75 > 7.5$
15) Side ≈ 9.5 ft; fencing $\approx 4(9.5)(\$12) = \$456$
16) $\sqrt{113} \approx 10.6$ cm; need an 11 cm strip
17) 7.07 is more accurate; $7.07^2 = 49.9849 \approx 50$

Scan Me

Topic 4 • Estimating Expressions with Irrational Numbers

1) ≈ 6.28
2) ≈ 4.14
3) ≈ 5.64
4) ≈ 3.73
5) ≈ 4.42
6) 2
7) ≈ 6.21
8) ≈ 5.86
9) ≈ 1.86
10) ≈ 3.81
11) 5
12) ≈ 2.44
13) $\approx 9.4\ \text{m}^2$
14) Rope A; ≈ 0.55 m longer
15) Total $\approx 4.5 + 3.14 = 7.64$ km; time $\approx 7.64 \div 5 \times 60 \approx 92$ min
16) Perimeter $\approx 2(4.24 + 4.24) \approx 16.96$ in; cost $\approx \$25.44$
17) $r \approx 4.0$ m; $C \approx 25.1$ m

Answers and Explanations on page: 152
Full worked solutions for Chapter 1 are waiting there.

CHAPTER

2

Exponents, Roots, & Scientific Notation

1. Properties of Integer Exponents NC.8.EE, NC.8.EE.1
2. Square Roots and Cube Roots NC.8.EE, NC.8.EE.2
3. Understanding Scientific Notation NC.8.EE, NC.8.EE.3
4. Operations with Scientific Notation NC.8.EE, NC.8.EE.4