The Ultimate Step by Step Guide to Preparing for Grade 8 Math

Students #1 Choice

GRADE 8 2021 MATH for Students

Reza Nazari

✓ Recommended by Test Prep Experts

GRADE 8 MATH FOR STUDENTS

The Ultimate Step by Step Guide to Preparing for the Grade 8 Math Test

By

Reza Nazari



About Effortless Math Education

Effortless Math Education operates the www.effortlessmath.com website, which prepares and publishes Test prep and Mathematics learning resources. Effortless Math authors' team strives to prepare and publish the best quality Mathematics learning resources to make learning Math easier for all. We Help Students Learn to Love Mathematics.

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Grade 8 MATH For Students

Get ready to succeed on the Grade 8 Math course no matter your current understanding of math!

The perfect guide for students of every level, ***Grade 8 Math for Students*** will help you incorporate the most effective methods and all the right strategies to get ready for your Grade 8 Math test!

This up-to-date guide reflects the 2021 national curriculum guidelines and will set you on the right track to hone your math skills, overcome exam anxiety, and boost your confidence. Are you ready to ace the Grade 8 Math test?

Grade 8 Math for Students creates confident, knowledgeable students that have all the skills they need to succeed on the Grade 8. It builds a solid foundation of mathematical concepts through easy-to-understand lessons and basic study guides. Not only does this all-inclusive book offer everything you will ever need to conquer the Grade 8 Math test, but it also contains two complete Grade 8 Math tests that reflect the format and question types on the Grade 8 to help you check your exam-readiness and identify where you need more practice.

With this book, students will learn math through structured lessons, complete with a study guide for each segment to help understand and retain concepts after the lesson is complete. It includes everything from:

- Content 100% aligned to national standards
- **Complete coverage of all Grade 8 Math concepts**
- **Step-by-step guide** for all Grade 8 Math topics
- Over 500 additional Grade 8 math practice questions in both multiple-choice and grid-in formats with answers grouped by topic (so you can focus on your weak areas)
- Abundant Math skills building exercises to help test-takers approach unfamiliar question types

- **2 complete practice tests** with detailed answers
- And much more!

With this self-study guide, you won't need a math tutor to pave your path to success. ***Grade 8 Math for students*** is the only book you'll ever need to master Grade 8 Math concepts and ace the Grade 8 Math test!

Ideal for self-study and classroom usage!

Discount, Tax and Tip

- To find the discount: Multiply the regular price by the rate of discount
- To find the selling price: Original price – discount
- To find tax: Multiply the tax rate to the taxable amount (income, property value, etc.)
- To find the tip, multiply the rate to the selling price.

Examples:

Example 1. With an 20% discount, Ella saved $50 on a dress. What was the original price of the dress?

Solution: let x be the original price of the dress. Then: $20\ \%\ of\ x = 50$. Write an equation and solve for x: $0.20 \times x = 50 \rightarrow x = \frac{50}{0.20} = 250$. The original price of the dress was $250.

Example 2. Sophia purchased a new computer for a price of $820 at the Apple Store. What is the total amount her credit card is charged if the sales tax is 5%?

Solution: The taxable amount is $820, and the tax rate is 5%. Then:

$$Tax = 0.05 \times 820 = 41$$

$$Final\ price = Selling\ pr \rightarrow final\ pric = \$820 + \$41 = \$861$$

Example 3. Nicole and her friends went out to eat at a restaurant. If their bill was $60.00 and they gave their server a 15% tip, how much did they pay altogether?

Solution: First, find the tip. To find the tip, multiply the rate to the bill amount. $Tip = 60 \times 0.15 = 9$. The final price is: $60 + $9 = $69

Simple Interest

- Simple Interest: The charge for borrowing money or the return for lending it.
- Simple interest is calculated on the initial amount (principal).
- To solve a simple interest problem, use this formula:

$$Interest = principal \times rate \times time \qquad (I = p \times r \times t = prt)$$

Examples:

Example 1. Find simple interest for \$200 investment at 5% for 3 years.

Solution: Use Interest formula:
$I = prt$ ($P = \$200$, $r = 5\% = \frac{5}{100} = 0.05$ and $t = 3$)
Then: $I = 200 \times 0.05 \times 3 = \$30$

Example 2. Find simple interest for \$1,200 at 8% for 6 years.

Solution: Use Interest formula:
$I = prt$ ($P = \$1{,}200$, $r = 8\% = \frac{8}{100} = 0.08$ and $t = 6$)
Then: $I = 1{,}200 \times 0.08 \times 6 = \$576$

Example 3. Andy received a student loan to pay for his educational expenses this year. What is the interest on the loan if he borrowed \$4,500 at 6% for 5 years?

Solution: Use Interest formula: $I = prt$. $P = \$4{,}500$, r = 6% = 0.06 and $t = 5$
Then: $I = 4{,}500 \times 0.06 \times 5 = \$1{,}350$

Example 4. Bob is starting his own small business. He borrowed \$20,000 from the bank at an 8% rate for 6 months. Find the interest Bob will pay on this loan.

Solution: Use Interest formula:
$I = prt$. $P = \$20{,}000$, $r = 8\% = 0.08$ and $t = 0.5$ (6 months is half year). Then:

$$I = 20{,}000 \times 0.08 \times 0.5 = \$800$$

Chapter 4: Practices

Reduce each ratio.

1) 2: 18 = ___: ___
2) 5: 35 = ___: ___
3) 8: 72 = ___: __
4) 24: 36 = ___: ___
5) 25: 40 = ___: ___
6) 40: 72 = ___: ___
7) 28: 63 = ___: ___
8) 18: 81 = ___: ___
9) 13: 52 = ___: ___
10) 56: 72 = ___: ___
11) 42: 63 = ___: ___
12) 32: 96 = ___: ___

Solve.

13) Bob has 16 red cards and 20 green cards. What is the ratio of Bob's red cards to his green cards? _____

14) In a party, 34 soft drinks are required for every 20 guests. If there are 260 guests, how many soft drinks are required? _____

15) Sara has 56 blue pens and 28 black pens. What is the ratio of Sara's black pens to her blue pens? _____

16) In Jack's class, 48 of the students are tall and 20 are short. In Michael's class 28 students are tall and 12 students are short. Which class has a higher ratio of tall to short students? _____

17) The price of 6 apples at the Quick Market is $1.52. The price of 5 of the same apples at Walmart is $1.32. Which place is the better buy? _____

18) The bakers at a Bakery can make 180 bagels in 6 hours. How many bagels can they bake in 16 hours? What is that rate per hour? _____

19) You can buy 6 cans of green beans at a supermarket for $3.48. How much does it cost to buy 38 cans of green beans? _____

Solve each proportion.

20) $\frac{3}{2} = \frac{9}{x} \Rightarrow x =$ ____

21) $\frac{7}{2} = \frac{x}{4} \Rightarrow x =$ ____

22) $\frac{1}{3} = \frac{2}{x} \Rightarrow x =$ ____

23) $\frac{1}{4} = \frac{5}{x} \Rightarrow x =$ ____

24) $\frac{9}{6} = \frac{x}{2} \Rightarrow x =$ ____

25) $\frac{3}{6} = \frac{5}{x} \Rightarrow x =$ ____

26) $\frac{7}{x} = \frac{2}{6} \Rightarrow x =$ ____

27) $\frac{2}{x} = \frac{4}{10} \Rightarrow x =$ ____

28) $\frac{3}{2} = \frac{x}{8} \Rightarrow x =$ ____

29) $\frac{x}{6} = \frac{5}{3} \Rightarrow x =$ ____

30) $\frac{3}{9} = \frac{5}{x} \Rightarrow x =$ ____

31) $\frac{4}{18} = \frac{2}{x} \Rightarrow x =$ ____

32) $\frac{6}{16} = \frac{3}{x} \Rightarrow x =$ ____

33) $\frac{2}{5} = \frac{x}{20} \Rightarrow x =$ ____

34) $\frac{28}{8} = \frac{x}{2} \Rightarrow x =$ ____

35) $\frac{3}{5} = \frac{x}{15} \Rightarrow x =$ ____

36) $\frac{2}{7} = \frac{x}{14} \Rightarrow x =$ ____

37) $\frac{x}{18} = \frac{3}{2} \Rightarrow x =$ ____

38) $\frac{x}{24} = \frac{2}{6} \Rightarrow x =$ ____

39) $\frac{5}{x} = \frac{4}{20} \Rightarrow x =$ ____

40) $\frac{10}{x} = \frac{20}{80} \Rightarrow x =$ ____

41) $\frac{90}{6} = \frac{x}{2} \Rightarrow x =$ ____

Solve each problem.

42)Two rectangles are similar. The first is 8 fee wide and 32 $feet$ long. The second is 12 $feet$ wide. What is the length of the second rectangle?

_____

43)Two rectangles are similar. One is 4.6 $meters$ by 7 $meters$. The longer side of the second rectangle is 28 $mete$. What is the other side of the second rectangle? _____

Solve each problem.

44) What is 15% of 60? ____

45) What is 55% of 800? ____

46) What is 22% of 120? ____

47) What is 18% of 40? ____

48) 90 is what percent of 200? ____%

49) 30 is what percent of 150? ____%

50) 14 is what percent of 250? ____%

51) 60 is what percent of 300? ____%

52) 30 is 120 percent of what number? ____

53) 120 is 20 percent of what number? ____

54) 15 is 5 percent of what number? ____

55) 22 is 20% of what number? ____

Solve each problem.

56) Bob got a raise, and his hourly wage increased from \$15 to \$21. What is the percent increase? _____ %

57) The price of a pair of shoes increases from \$32 to \$36. What is the percent increase? ___ %

58) At a coffee shop, the price of a cup of coffee increased from \$1.35 to \$1.62. What is the percent increase in the cost of the coffee? _____ %

59) A \$45 shirt now selling for \$36 is discounted by what percent? _____ %

60) Joe scored 30 out of 35 marks in Algebra, 20 out of 30 marks in science and 58 out of 70 marks in mathematics. In which subject his percentage of marks is best? _____

61) Emma purchased a computer for \$420. The computer is regularly priced at \$480. What was the percent discount Emma received on the computer? _____

62) A chemical solution contains 15% alcohol. If there is 54 ml of alcohol, what is the volume of the solution? _____

Find the selling price of each item.

63) Original price of a computer: $600

Tax: 8%, Selling price: $_____

64) Original price of a laptop: $450

Tax: 10%, Selling price: $_____

65) Nicolas hired a moving company. The company charged $500 for its services, and Nicolas gives the movers a 14% tip. How much does Nicolas tip the movers? $_____

66) Mason has lunch at a restaurant and the cost of his meal is $40. Mason wants to leave a 20% tip. What is Mason's total bill, including tip? $_____

Determine the simple interest for the following loans.

67) $1,000 *at* 5% *for* 4 *years*. $__

68) $400 *at* 3% *for* 5 *years*. $__

69) $240 *at* 4% *for* 3 *yea* . $__

70) $500 at 4.5% for 6 years. $__

Solve.

71) A new car, valued at $20,000, depreciates at 8% per year. What is the value of the car one year after purchase? $_____

72) Sara puts $7,000 into an investment yielding 3% annual simple interest; she left the money in for five years. How much interest does Sara get at the end of those five years? $_____