STAAR Grade 7 Math Prep 2020

A Comprehensive Review and Step-By-Step Guide to Preparing for the STAAR Math Test

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By

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Description

STAAR Grade 7 Math Prep 2020, which reflects the 2020 STAAR grade 7 test guidelines, provides students with the confidence and math skills they need to ace the STAAR Math test. This comprehensive Prep book with hundreds of examples, over 2,000 sample questions, and two full length STAAR Grade 7 Math tests is all you will ever need to fully prepare for the STAAR Math. It will help you hone your math skills, overcome your exam anxiety, and boost your confidence -- and do your best to succeed on the STAAR Math Test.

Whether you are intimidated by math, or even if you were the first to raise your hand in the Math classes, this book can help you incorporate the most effective method and the right strategies to prepare for the STAAR Grade 7 Math test successfully. ***STAAR Grade 7 Math Prep 2020*** is a breakthrough in Math learning — offering a winning formula and the most powerful methods for learning basic Math topics confidently.

The surest way to succeed on STAAR Math Test is with intensive practice in every math topic tested--and that's what you will get in ***STAAR Grade 7 Math Prep 2020***. Each chapter of this focused format has a comprehensive review created by Test Prep experts that goes into detail to cover all of the content likely to appear on the STAAR Grade 7 Math test. Not only does this all-inclusive workbook offer everything you will ever need to conquer STAAR Math test, it also contains two full-length and realistic STAAR Grade 7 Math tests that reflect the format and question types on the STAAR to help you check your exam-readiness and identify where you need more practice.

Inside the pages of this comprehensive prep book, students can learn math topics in a structured manner with a complete study program to help them understand essential math skills. It also has many exciting features, including:

- Content 100% aligned with the 2020 STAAR test
- Written by STAAR Math tutors and test experts
- Complete coverage of all STAAR Grade 7 Math concepts and topics which you will be tested
- Step-by-step guide for all STAAR Grade 7 Math topics
- Over 2,000 additional STAAR 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 skill building exercises to help test-takers approach different question types that might be unfamiliar to them
- 2 full-length practice tests (featuring new question types) with detailed answers

STAAR Grade 7 Math Prep 2020 is the only book you'll ever need to master Basic Math topics! It can be used as a self–study course – you do not need to work with a Math tutor. (It can also be used with a Math tutor)

Ideal for self-study as well as for classroom usage.

Discount, Tax and Tip

Step-by-step guide:

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

Examples:

1) With an 20% discount, Ella was able to save $\$40$ on a dress. What was the original price of the dress?
$20\%\ of\ x = 40, \frac{20}{100} \times x = 40, x = \frac{100 \times 40}{20} = 200$

2) Sophia purchased a sofa for $\$250.40$. The sofa is regularly priced at $\$313.125$. What was the percent discount Sophia received on the sofa?
Use this formula: $percent = Part \div base = 250.50 \div 313.125 = 0.80 = 80\%$
Therefore, the discount is: $100\% - 80\% = 20\%$

Find the selling price of each item.

1) Original price of a computer: $200
   Tax: 10%, Selling price: $_____
2) Original price of a laptop: $400
   Tax: 5%, Selling price: $_____
3) Original price of a sofa: $500
   Tax: 8%, Selling price: $_____
4) Original price of a car: $800
   Tax: 25%, Selling price: $_____
5) Original price of a Table: $250
   Tax: 10%, Selling price: $_____
6) Original price of a house: $1,500
   Tax: 15% Selling price: $_____
7) Original price of a tablet: $600
   Discount: 20%, Selling price: $_____
8) Original price of a chair: $450
   Discount: 25%, Selling price: $_____
9) Original price of a book: $125
   Discount: 15%, Selling price: $_____
10) Original price of a cellphone: $900
   Discount: 12%, Selling price: $_____

Answers – Chapter 6

Percentage Calculations

1) 10
2) 20
3) 10
4) 21
5) 9
6) 40
7) 30
8) 9
9) 36
10) 24.94
11) 17.82
12) 79.52

Percent Problems

1) 10%
2) 80%
3) 200
4) 300
5) 40%
6) 20%
7) 31.25%
8) 20%
9) 250%
10) 425
11) 60
12) 320

Percent of Increase and Decrease

1) 25%
2) 50%
3) 20%
4) 20%
5) 16%
6) 10%
7) 20%

Markup, Discount, and Tip

1) $220.00
2) $420.00
3) $540.00
4) $1,000.00
5) $275.00
6) $1,725
7) $480.00
8) $337.50
9) $106.25
10) $792.00

Chapter 7:

Exponents and Variables

Math Topics that you'll learn in this chapter:

- ✓ Multiplication Property of Exponents
- ✓ Division Property of Exponents
- ✓ Powers of Products and Quotients
- ✓ Zero and Negative Exponents
- ✓ Negative Exponents and Negative Bases
- ✓ Scientific Notation
- ✓ Square Roots

Mathematics is an art of human understanding. ~ William Thurston

Multiplication Property of Exponents

Step-by-step guide:

- ✓ Exponents are shorthand for repeated multiplication of the same number by itself. For example, instead of 2×2, we can write 2^2. For $3 \times 3 \times 3 \times 3$, we can write 3^4
- ✓ In algebra, a variable is a letter used to stand for a number. The most common letters are: $x, y, z, a, b, c, m, and\ n$.
- ✓ Exponent's rules: $x^a \times x^b = x^{a+b}$, $\frac{x^a}{x^b} = x^{a-b}$

$$(x^a)^b = x^{a \times b}, \qquad (xy)^a = x^a \times y^a \text{ , } (\frac{a}{b})^c = \frac{a^c}{b^c}$$

Examples:

1) Multiply. $4x^3 \times 2x^2 =$

Use Exponent's rules: $x^a \times x^b = x^{a+b} \rightarrow x^3 \times x^2 = x^{3+2} = x^5$

Then: $4x^3 \times 2x^2 = 8x^5$

2) Multiply. $(x^3y^5)^2 =$

Use Exponent's rules: $(x^a)^b = x^{a \times b}$. Then: $(x^3y^5)^2 = x^{3 \times 2}y^{5 \times 2} = x^6y^{10}$

Simplify and write the answer in exponential form.

1) $2x^2 \times 4x =$

2) $5x^4 \times x^2 =$

3) $8x^4 \times 3x^5 =$

4) $3x^2 \times 6xy =$

5) $2x^5y \times 4x^2y^3 =$

6) $9x^2y^5 \times 5x^2y^8 =$

7) $5x^2y \times 5x^2y^7 =$

8) $7x^6 \times 3x^9y^4 =$

9) $8x^8y^5 \times 7x^5y^3 =$

10) $9x^6x^2 \times 4xy^5 =$

11) $12xy^7 \times 2x^9y^8 =$

12) $9x^9y^{12} \times 9x^{14}y^{11} =$

Division Property of Exponents

Step-by-step guide:

- ✓ For division of exponents use these formulas: $\frac{x^a}{x^b} = x^{a-b}$, $x \neq 0$

$$\frac{x^a}{x^b} = \frac{1}{x^{b-a}}, x \neq 0, \qquad \frac{1}{x^b} = x^{-b}$$

Examples:

1) Simplify. $\frac{12x^2y}{4xy^3} =$

First cancel the common factor: $4 \rightarrow \frac{12x^2y}{4xy^3} = \frac{3x^2y}{xy^3}$

Use Exponent's rules: $\frac{x^a}{x^b} = x^{a-b} \rightarrow \frac{x^2}{x} = x^{2-1} = x$ and $\frac{y}{y^3} = y^{1-3} = y^{-2}$

Then: $\frac{12x^2y}{4xy^3} = \frac{3x}{y^2}$

2) Divide. $\frac{18x^{-6}}{2x^{-3}} =$

Use Exponent's rules: $\frac{x^a}{x^b} = \frac{1}{x^{b-a}} \rightarrow \frac{x^{-6}}{x^{-3}} = \frac{1}{x^{-3-(-6)}} = \frac{1}{x^{-3+6}} = \frac{1}{x^3}$

Then: $\frac{18^{\ -6}}{2x^{-3}} = \frac{9}{x^3}$

Simplify.

1) $\frac{5^2 \times 5^3}{5^4 \times 5^2} =$

2) $\frac{4x}{8x^2} =$

3) $\frac{15x^6}{3x^5} =$

4) $\frac{18x^5}{12x^8} =$

5) $\frac{24x^5}{4y^3} =$

6) $\frac{36xy^3}{2x^5y^2} =$

7) $\frac{8x^8y}{3xy^2} =$

8) $\frac{20^{\ 5}y^9}{4x^3} =$

9) $\frac{28^{\ 2}}{8x^5y^3} =$

10) $\frac{25yx^4}{5yx^8} =$

11) $\frac{45x^4y}{9x^8y^2} =$

12) $\frac{4x^8y^2}{20^{\ 8}y} =$

Powers of Products and Quotients

Step-by-step guide:

- ✓ For any nonzero numbers a and b and any integer x, $(ab)^x = a^x \times b^x$.

Example:

1) Simplify. $(6x^2y^4)^2 =$

Use Exponent's rules: $(x^a)^b = x^{a\times b}$

$(6x^2y^4)^2 = (6)^2(x^2)^2(y^4)^2 = 36x^{2\times 2}y^{4\times 2} = 36x^4y^8$

2) Simplify. $(\frac{5x}{2x^2})^2 =$

First cancel the common factor: $x \rightarrow (\frac{5x}{2x^2})^2 = (\frac{5}{2x})^2$

Use Exponent's rules: $(\frac{a}{b})^c = \frac{a^c}{b^c}$

Then: $(\frac{5}{2x})^2 = \frac{5^2}{(2x)^2} = \frac{25}{4x^2}$

Simplify.

1) $(x^2y^6)^2 =$

2) $(x^3 \times y)^2 =$

3) $(2x^5y^3)^2 =$

4) $(3x^3y^6)^2 =$

5) $(4x^5y^6)^3 =$

6) $(5x \times 2y^5)^2 =$

7) $(\frac{3x}{x^2})^3 =$

8) $\left(\frac{x^2y^3}{x^2y^2}\right)^3 =$

9) $\left(\frac{16x}{4x^6}\right)^2 =$

10) $\left(\frac{2x^5}{x^2y^2}\right)^2 =$

11) $\left(\frac{xy^2}{x^2y^3}\right)^{-2} =$

12) $\left(\frac{8xy^2}{x^3}\right)^2 =$