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SSAT Upper Level Math Study Guide 2020-2021

A Comprehensive Review and Step-By-Step Guide to Preparing for the SSAT Upper Level Math

Recommended by Test Prep Experts



Reza Nazari & Ava Ross

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A Comprehensive Review and Step-By-Step Guide to Preparing for the SSAT Upper Level Math

By

Reza Nazari & Ava Ross

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Description

SSAT Upper Level Math Study Guide, which reflects the 2020 - 2021 test guidelines, is designed by top SSAT Upper Level Math instructors and test prep experts to help test takers succeed on the SSAT Upper Level Math Test. The updated version of this comprehensive SSAT Upper Level Math preparation book includes Math lessons, extensive exercises, sample SSAT Upper Level Math questions, and quizzes with answers and detailed solutions to help you hone your math skills, overcome your exam anxiety, boost your confidence—and do your best to ace the SSAT Upper Level exam on test day. Upon completion of this perfect SSAT Upper Level Math prep book, you will have a solid foundation and sufficient practice to ace the SSAT Upper Level Math test.

Not only does this all-inclusive prep book offer everything you will ever need to prepare for the SSAT Upper Level Math test, but it also contains two complete and realistic SSAT Upper Level Math tests that reflect the format and question types on the SSAT Upper Level to help you check your exam-readiness and identify where you need more practice.

SSAT Upper Level Math Study Guide contains many exciting and unique features to help you prepare for the SSAT Upper Level Math test, including:

- ✓ Content 100% aligned with the 2020 SSAT Upper Level® test
- ✓ Written by SSAT Upper Level Math instructors and test experts
- ✓ Complete coverage of all SSAT Upper Level Math concepts and topics which you will be tested
- ✓ Step-by-step guide for all SSAT Upper Level Math topics
- ✓ Abundant Math skill building exercises to help test-takers approach different question types that might be unfamiliar to them
- ✓ Exercises on different SSAT Upper Level Math topics such as integers, percent, equations, polynomials, exponents and radicals
- ✓ 2 full-length practice tests (featuring new question types) with detailed answers

Name: ……..	**Date:** ……

Topic	**Simplifying Ratios**	
Notes	✓ Ratios are used to make comparisons between two numbers. ✓ Ratios can be written as a fraction, using the word "to", or with a colon. ✓ You can calculate equivalent ratios by multiplying or dividing both sides of the ratio by the same number.	
Examples	***Simplify.*** $18:63 =$ Both numbers 18 and 63 are divisible by $9 \Rightarrow 18 \div 9 = 2, 63 \div 9 = 7,$ Then: $18:63 = 2:7$ ***Simplify***. $\frac{25}{45} =$ Both numbers 25 and 45 are divisible by $5, \Rightarrow\ 25 \div 5 = 5, 45 \div 5 = 9,$ Then: $\frac{25}{45} = \frac{5}{9}$	
Your Turn!	1) $\frac{4}{32} = -$	2) $\frac{25}{80} = -$
	3) $\frac{15}{35} = -$	4) $\frac{42}{54} = -$
	5) $\frac{12}{36} = -$	6) $\frac{30}{80} = -$
	7) $\frac{18}{24} = -$	8) $\frac{60}{108} = -$

Name: ……	**Date:** ……

Topic	**Simplifying Ratios - Answers**	
Notes	✓ Ratios are used to make comparisons between two numbers. ✓ Ratios can be written as a fraction, using the word "to", or with a colon. ✓ You can calculate equivalent ratios by multiplying or dividing both sides of the ratio by the same number.	
Examples	***Simplify.*** $18:63 =$ Both numbers 18 and 63 are divisible by $9 \Rightarrow 18 \div 9 = 2, 63 \div 9 = 7,$ Then: $18:63 = 2:7$ ***Simplify.*** $\frac{25}{45} =$ Both numbers 25 and 45 are divisible by $5, \Rightarrow\ 25 \div 5 = 5, 45 \div 5 = 9,$ Then: $\frac{25}{45} = \frac{5}{9}$	
Your Turn!	1) $\frac{4}{32} = \frac{1}{8}$	2) $\frac{25}{80} = \frac{5}{16}$
	3) $\frac{15}{35} = \frac{3}{7}$	4) $\frac{42}{54} = \frac{7}{9}$
	5) $\frac{12}{36} = \frac{1}{3}$	6) $\frac{30}{80} = \frac{3}{8}$ 7)
	8) $\frac{18}{24} = \frac{3}{4}$	9) $\frac{60}{108} = \frac{5}{9}$

Name: ……..	**Date:** ……..

Topic	**Proportional Ratios**	
Notes	✓ Two ratios are proportional if they represent the same relationship. ✓ A proportion means that two ratios are equal. It can be written in two ways: $\frac{a}{b}=\frac{c}{d}$ $a:b=c:d$	
Example	***Solve this proportion for*** x. $\frac{5}{8}=\frac{35}{x}$ Use cross multiplication: $\frac{5}{8}=\frac{35}{x}\Rightarrow 5\times x=8\times 35\Rightarrow 5x=280$ Divide to find x: $x=\frac{280}{5}\Rightarrow x=56$	
Your Turn!	1) $\frac{1}{9}=\frac{8}{x}\Rightarrow x=$ ____	2) $\frac{5}{8}=\frac{25}{x}\Rightarrow x=$ ____
	3) $\frac{3}{11}=\frac{6}{x}\Rightarrow x=$ ____	4) $\frac{12}{20}=\frac{x}{200}\Rightarrow x=$ ____
	5) $\frac{9}{12}=\frac{27}{x}\Rightarrow x=$ ____	6) $\frac{14}{16}=\frac{x}{80}\Rightarrow x=$ ____
	7) $\frac{7}{15}=\frac{49}{x}\Rightarrow x=$ ____	8) $\frac{8}{19}=\frac{32}{x}\Rightarrow x=$ ____

Name: ……	**Date:** ……

Topic	**Proportional Ratios - Answers**	
Notes	✓ Two ratios are proportional if they represent the same relationship. ✓ A proportion means that two ratios are equal. It can be written in two ways: $\frac{a}{b}=\frac{c}{d}$ $a:b=c:d$	
Example	***Solve this proportion for*** x. $\frac{5}{8}=\frac{35}{x}$ Use cross multiplication: $\frac{5}{8}=\frac{35}{x}\Rightarrow 5\times x=8\times 35\Rightarrow 5x=280$ Divide to find x: $x=\frac{280}{5}\Rightarrow x=56$	
Your Turn!	1) $\frac{1}{9}=\frac{8}{x}\Rightarrow x=72$	2) $\frac{5}{8}=\frac{25}{x}\Rightarrow x=40$
	3) $\frac{3}{11}=\frac{6}{x}\Rightarrow x=22$	4) $\frac{12}{20}=\frac{x}{200}\Rightarrow x=120$
	5) $\frac{9}{12}=\frac{27}{x}\Rightarrow x=36$	6) $\frac{14}{16}=\frac{x}{80}\Rightarrow x=70$
	7) $\frac{7}{15}=\frac{49}{x}\Rightarrow x=105$	8) $\frac{8}{19}=\frac{32}{x}\Rightarrow x=76$

Name: ……..	**Date:** ……..

Topic	**Create Proportion**
Notes	✓ To create a proportion, simply find (or create) two equal fractions. ✓ Use cross products to solve proportions or to test whether two ratios are equal and form a proportion. $\frac{a}{b} = \frac{c}{d} \Rightarrow a \times d = c \times b$
Example	***State if this pair of ratios form a proportion***. $\frac{2}{3} and \frac{12}{30}$ Use cross multiplication: $\frac{2}{3} = \frac{12}{30} \rightarrow 2 \times 30 = 12 \times 3 \rightarrow 60 = 36$, which is not correct. Therefore, this pair of ratios doesn't form a proportion.
Your Turn!	***State if each pair of ratios form a proportion.***

1) $\frac{4}{8} and \frac{24}{48}$	2) $\frac{5}{15} and \frac{10}{20}$
3) $\frac{3}{11} and \frac{9}{33}$	4) $\frac{7}{10} and \frac{14}{20}$
5) $\frac{7}{9} and \frac{48}{81}$	6) $\frac{6}{8} and \frac{12}{14}$
7) $\frac{2}{10} and \frac{6}{30}$	8) $\frac{9}{12} and \frac{18}{24}$

9) Solve.

Five pencils costs \$0.65. How many pencils can you buy for \$2.60? _____

Name: ……	**Date:** ……

Topic	**Create Proportion**
Notes	✓ To create a proportion, simply find (or create) two equal fractions. ✓ Use cross products to solve proportions or to test whether two ratios are equal and form a proportion. $\frac{a}{b} = \frac{c}{d} \Rightarrow a \times d = c \times b$
Example	***State if this pair of ratios form a proportion***. $\frac{2}{3} and \frac{12}{30}$ Use cross multiplication: $\frac{2}{3} = \frac{12}{30} \rightarrow 2 \times 30 = 12 \times 3 \rightarrow 60 = 36$, which is not correct. Therefore, this pair of ratios doesn't form a proportion.

Your Turn!

State if each pair of ratios form a proportion.

1) $\frac{4}{8} and \frac{24}{48}, Yes$	2) $\frac{5}{15} and \frac{10}{20}, No$
3) $\frac{3}{11} and \frac{9}{33}, Yes$	4) $\frac{7}{10} and \frac{14}{20}, Yes$
5) $\frac{7}{9} and \frac{48}{81}, No$	6) $\frac{6}{8} and \frac{12}{14}, No$
7) $\frac{2}{10} and \frac{6}{30}, Yes$	8) $\frac{9}{12} and \frac{18}{24}, Yes$

9) Solve.

Five pencils costs \$0.65. How many pencils can you buy for \$2.60? **20 pencils**