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By

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ISBN: 978-1-63719-085-2

Published by: Effortless Math Education Inc.

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Topic	Integers and Absolute Value	
Notes	✓ The absolute value of a number is its distance from zero, in either direction, on the number line. For example, the distance of 9 and -9 from zero on number line is 9. ✓ Absolute value is symbolized by vertical bars, as in $\lvert x\rvert$.	
Example	***Calculate***. $\lvert 8-3\rvert \times \lvert 11-15\rvert =$ First calculate $\lvert 8-3\rvert$, $\rightarrow \lvert 8-3\rvert = \lvert 5\rvert$, the absolute value of 5 is 5, $\lvert 5\rvert = 5$ $5 \times \lvert 11-15\rvert =$ Now calculate $\lvert 11-15\rvert$, $\rightarrow \lvert 11-15\rvert = \lvert -4\rvert$, the absolute value of -4 is 4, $\lvert -4\rvert = 4$. Then: $5 \times 4 = 20$	
Your Turn!	1) $11-\lvert 7-12\rvert =$	2) $14-\lvert 10-15\rvert -\lvert 9\rvert =$
	3) $\lvert 28\rvert - \frac{\lvert -35\rvert}{7} =$	4) $\lvert -19\rvert + \frac{\lvert -48\rvert}{6} =$
	5) $\frac{\lvert 4\times -7\rvert}{4} \times \frac{\lvert -22\rvert}{2} =$	6) $\frac{\lvert 10\times -4\rvert}{5} \times \lvert -20\rvert =$
Find more at bit.ly/3aD521u	7) $\frac{\lvert -54\rvert}{9} \times \frac{\lvert -49\rvert}{7} =$	8) $\lvert -38+9\rvert \times \frac{\lvert -9\times 4\rvert}{6} =$

Chapter 3: Answers

Adding and Subtracting Integers

1) -5
2) -21
3) 19
4) 18
5) -8
6) 15
7) -12
8) -9

Multiplying and Dividing Integers

1) -21
2) -7
3) 56
4) 7
5) -42
6) 5
7) -8
8) -3

Order of Operations

1) 3
2) 15
3) 2
4) -10
5) -6
6) 13
7) 14
8) 2

Integers and Absolute Values

1) 6
2) 0
3) 23
4) 27
5) 77
6) 160
7) 42
8) 174

CHAPTER

4 Ratios and Proportions

Math topics that you'll learn in this chapter:



- ✓ Simplifying Ratios
- ✓ Proportional Ratios
- ✓ Create Proportion
- ✓ Similarity and Ratios



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.*** $16:56 =$ Both numbers 16 and 56 are divisible by $8 \Rightarrow 16 \div 8 = 2, 56 \div 8 = 7,$ Then: $16:56 = 2:7$ ***Simplify***. $\frac{35}{45} =$ Both numbers 35 and 45 are divisible by $5, \Rightarrow 35 \div 5 = 7, 45 \div 5 = 9,$ Then: $\frac{35}{45} = \frac{7}{9}$	
Your Turn!	1) $\frac{5}{45} = -$	2) $\frac{12}{36} = -$
	3) $\frac{15}{60} = -$	4) $\frac{48}{56} = -$
	5) $\frac{24}{96} = -$	6) $\frac{40}{72} = -$
Find more at bit.ly/3nKwq0Z	7) $\frac{24}{80} = -$	8) $\frac{34}{136} = -$

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. $\frac{4}{9}=\frac{24}{x}$ Use cross multiplication: $\frac{4}{9}=\frac{24}{x}\Rightarrow 4\times x=9\times 24\Rightarrow 4x=216$ Divide to find x: $x=\frac{216}{4}\Rightarrow x=54$	
Your Turn!	1) $\frac{1}{5}=\frac{6}{x}\Rightarrow x=$ ____	2) $\frac{3}{4}=\frac{15}{x}\Rightarrow x=$ ____
	3) $\frac{2}{11}=\frac{4}{x}\Rightarrow x=$ ____	4) $\frac{4}{5}=\frac{x}{20}\Rightarrow x=$ ____
	5) $\frac{8}{9}=\frac{24}{x}\Rightarrow x=$ ____	6) $\frac{16}{6}=\frac{x}{30}\Rightarrow x=$ ____
Find more at bit.ly/37GHQxp	7) $\frac{5}{14}=\frac{30}{x}\Rightarrow x=$ ____	8) $\frac{4}{14}=\frac{34}{x}\Rightarrow x=$ ____

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.*** $\frac{1}{3}$ ***and*** $\frac{12}{40}$ Use cross multiplication: $\frac{1}{3} = \frac{12}{40} \rightarrow 1 \times 40 = 12 \times 3 \rightarrow 40 = 36$, 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) $\frac{2}{5}$ and $\frac{15}{45}$	2) $\frac{3}{4}$ and $\frac{18}{24}$
3) $\frac{2}{11}$ and $\frac{16}{88}$	4) $\frac{2}{5}$ and $\frac{54}{90}$
5) $\frac{2}{3}$ and $\frac{42}{56}$	6) $\frac{4}{5}$ and $\frac{28}{70}$
7) $\frac{2}{7}$ and $\frac{5}{40}$	8) $\frac{6}{15}$ and $\frac{18}{40}$

Find more at

bit.ly/37GHQxp

9) Solve.

Five pencils costs $\$0.60$. How many pencils can you buy for $\$4.80$? _____