Study Guide – Dividing Whole Numbers

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| Division Vocabulary  **Dividend:** The number being divided  Ex: 270 is the dividend in this equation: **270** ÷ 9 = 30  **Divisor:** The number you divide by. Ex: Ten is the divisor in the equation: 20 ÷ **10** = 2  **Quotient:** The answer to a division problem: Four is the quotient in this problem: 12 ÷ 3 = **4**  **Remainder**: The number left over if the dividend cannot be divided by the divisor evenly. Ex: 17 ÷ 4 = 4 with a remainder of 1. Remainders may be written with the letter “R”.  **Divisible:** One number can be divided by another, and the result is an exact whole number. Ex: Fifteen can be divided by three exactly five times (15 ÷ 3 = 5); there is no remainder. | Use the following equation to write the correct number next to the vocabulary word.  **27 ÷ 9 = 3**  Quotient \_\_\_\_\_\_\_  Divisor \_\_\_\_\_\_  Dividend \_\_\_\_\_\_  What is the remainder for 27 ÷ 4? \_\_\_\_\_\_\_\_\_  Circle the numbers that are divisible by 7:  21 37 42 70  140 17 23 40 | | |
| Estimating Quotients  Numbers can be estimated to make computation easier when an exact number is not needed (or to check for reasonableness of an exact answer).  When estimating with division, there are several ways to estimate: Example: 216 ÷ 8  **Rounding** – round 216 to 200; 200 ÷ 8 = 25  **Compatible numbers** - Substitute 240 for 216 because 24 is a multiple of 8.  24 ÷ 8 = 3 so 240 ÷ 8 = 30  **Multiplication** – Think, 8 times what number is about 216? 8 x 25 = 200 and 8 x 30 = 240. Since 216 is between 200 and 240, a good estimate would be a little more than 25.  \*\*\*\*\*When asked for an estimate, you do not need to find the exact answer. | Estimate the quotient. (rounding)    162 ÷ 4 =  5,845 ÷ 9 = | | |
| Dividing Whole Numbers  The process of dividing whole numbers involves several steps. These steps have been practiced in class. A great website for the steps is <http://www.mathsisfun.com/long_division.html>  Example:  68/2 step 8  ALWAYS Check your work – use multiplication for checking. Example: 34 x 2 = 68 | Divide. Show your work.   |  |  | | --- | --- | | \_\_\_\_\_\_\_  5) 278 | \_\_\_\_\_\_\_  7) 654 | | | |
| Dividing Whole Numbers with Zeros in the Quotient, and Larger Dividends  Dividing with zeros in the quotient – When going through the steps of long division, if you “bring down,” you must divide. If the number you are dividing into is smaller than the divisor, you must place a zero in the quotient.  Dividing with larger dividends – Divide as you would with smaller dividends, completing the steps over and over until each digit in the dividend has been used  Dividing with money – Divide as usual, turn your quotient into a money amount with a decimal point and dollar sign. If you have a remainder when dividing with money, round the remainder to the nearest penny (after listing the remainder as a fraction, if it is more than half, go up to the next penny. If the remainder is less than half, you may drop it.) | Divide. Show your work.   |  |  | | --- | --- | | \_\_\_\_\_\_  4) 825 | \_\_\_\_\_\_\_  6) 107 | | | |
| Estim  Division Steps  When dividing, or separating, large numbers; please remember the following steps:    **D**oes **D**ivide  **M**cDonald’s **M**ultiply  **S**ell **S**ubtract  **C**heese **C**ompare  **B**urgers? **B**ring Down |  | | |
|  | Dividing by Multiples of Ten  When you Divide by Multiples of 10, 100, and 1,000 knowing your basic facts & place-value patterns can help you find the answer. Ex: Find 350 ÷ 5. First find the basic fact. 35 ÷ 5 = 7; 35 tens ÷ 5 = 7 tens or 70  After discussing place value patterns and “why this works” in class, we discovered the rule that when dividing multiples of ten by multiples of ten, we can cross out an equal number of zeros in the divisor and dividend and then solve. Ex: 36,000 ÷ 400 has the same quotient as 360 ÷ 4 because we can “cross out” two zeros in both numbers.  Divide using the place value patterns and basic facts.  360 ÷ 6 = \_\_\_\_\_\_  1,200 ÷ 6 = \_\_\_\_\_\_\_  240 ÷ 80 = \_\_\_\_\_\_  15,000 ÷ 300 = \_\_\_\_\_\_ | | |
| **Division Word Problems**  **The Starline Express is a train that can transport 567 people from Greenville to Snowtown. There are 9 passenger cars on the train. Each car can carry the same number of passengers. How many people can each passenger car hold?**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **New Era Baseball Cap factory made 315 caps last week. The factory operated from Monday through Friday, and they were closed for the weekend. On average, how many caps did they make per day?**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_** | \_\_\_\_\_  2) 732 | \_\_\_\_\_  4) 487 | \_\_\_\_\_  6) 538 |
| **Problem Solving – Understanding Remainders**  When you solve a word problem using division, the real-world situation tells how to make sense of the remainder.  Ex: There are 135 students in a certain grade. Each table in the lunchroom seats six students. How many tables would need to be set up in the lunchroom? Division problem: 135 ÷ 6 = 22 with 3 left over. Since every student must have a place to sit, you would round the answer up to 23 tables. | Solve figure out the remainder based on the real-world situation).  Bridget is selling lemonade.   1. She needs 8 lemons for each pitcher of lemonade. If she has 85 lemons, how many pitchers of lemonade can she make? 2. Each pitcher of lemonade needs ice. If Bridget has 240 cubes of ice, how many pieces of ice can she put in each pitcher from part a?   *This problem requires you to show all your work or explain all your reasoning. You may use drawings, words, or numbers in your answer. Your answer should be written so that another person could read it and understand your reasoning.* | | |