Place Value Unit Test Study Guide Worth 2 Grades

1. **Vocabulary**

digits – 0 – 9 The digits in 322 are 3 and 2.

expanded form – 300 + 20 + 2 or (3X10X10)+(2X10)+(2X1)

standard form – 322

value – The value of the 3 in the number 322 is 300.

written or word form – three hundred twenty-two

1. **Writing Numbers in Word Form and Expanded Form**

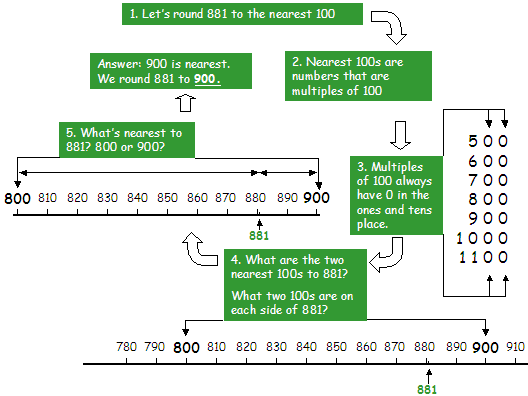
|  |  |
| --- | --- |
| word form | standard form |
| five thousand, two hundred fifty-six | 5,256 |
| five thousand, two hundred fifty-six and three tenths | 5,256.3 |
| five thousand, two hundred fifty-six and three hundredths | 5,256.03 |

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| thirty - five thousand, two hundred fifty-six and eighty-seven hundredths | 35,256.87 |
| nine hundred twelve million, two thousand seventeen | 912,002,017 |
| nine hundred twelve million, two thousand seventeen and five hundred fifty-one thousandths | 912,002,017.551 |

1. **Writing Whole Numbers & Decimals in Expanded Form Using Exponents and Powers of 10**

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| **Standard Form** | **Expanded Form** | **Expanded From Using Powers of 10 and Exponents** |
| 5 | 5 x 1 | 5 x 10o |
| 56 | (5 x 10) + (6 x 1) | (5 x 101)+ (6 x 10o |
| 567 | (5 x 100) + (6 x 10) + (7 x 1) | (5 x 102)+ (6 x 101)+ (7 x 10o |
| 5678 | (5 x 1,000) + (6 x 100) + (7 x 10) + (8 x 1) | (5 x 103)+ (6 x 102)+ (7 x 101)+ (8 x 10o |
| Standard Form | Expanded Form Using Powers of 10 and Exponents | Written/Word Form |
| 5.4 | (5 x 100) + (4 x 0.1) | five and four tenths |
| 56.25 | (5 x 101)+ (6 x 100)+ (2 x 0.1) + (5 x 0.01) | fifty-six and twenty-five hundredths |
| 956.7 | (9 x 102)+ (5 x 101)+ (6 x 100)+ (7 x 0.1) | nine hundred fifty-six and seven tenths |
| 456.789 | (4x102)+ (5x101)+ (6x100)+ (7x0.1) + (8x0.01) + (9x0.001) | four hundred fifty-six and seven hundred eighty-nine thousandths |

1. **Rounding Whole Numbers and Decimals**



**How to round to the nearest 100**

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| **Steps** | **Example 1** | **Example 2** | **Example 3** | **Example 4** |
| **Let’s round a number to the nearest 100.** | **441** | **178** | **922** | **4568** |
| **Underline the ten's place.** | **441** | **178** | **922** | **4568** |
| **If it is less than 5, round down.** | **400** |  | **900** |  |
| **If it is 5 or more, round up.** |  | **200** |  | **4600** |

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### Example: Round 74 to the nearest 10

* The next digit is "4" which is less than 5, so no change is needed to "7" **Answer: 70**

Example: Round 86 to the nearest 10 **Answer: 90**  (86 gets "rounded up")

* We want to keep the "8"
* The next digit is "6" which is 5 or more, so increase the "8" by 1 to "9"

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## Rounding Decimals

First you need to know if you are rounding to tenths, hundredths, or thousandths. That tells you how much of the number will be left when you finish.

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| **Examples** | **Because ...** |
| 3.1416 rounded to hundredths is 3.14 | ... the next digit (1) is less than 5 |
| 1.2635 rounded to tenths is 1.3 | ... the next digit (6) is 5 or more |
| 1.2635 rounded to 3 decimal places is 1.264 | ... the next digit (5) is 5 or more |
|  |  |
| 134.9 rounded to tens is 130 | ... the next digit (4) is less than 5 |
| 12,690 rounded to thousands is 13,000 | ... the next digit (6) is 5 or more |
| 1.239 rounded to units is 1 | ... the next digit (2) is less than 5 |

1. **Comparing Whole Numbers & Decimals Using <, >, or =**

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| Step 1: Line up the numbers by place value. **Be sure to line up the decimal points.** | Step 2: Compare the digits in the greatest place value. | Step 3: Compare the digits in the next greatest place value until you find a difference. |
| Whole Number Example:  7,428  7,435 | 7,428  7,435  The greatest place value is the one furthest to the left. Here it is the thousands place. | Same Same Different  7, 4 2 8  7, 4 3 5  Therefore:  7,428 < 7,435  Because the 3 in tens place is greater than the 2 in the tens place. |
| Decimal Example:  57.62  57.289 | 5 7 .62  5 7 .289  The greatest place value is the one furthest to the left. Here it is the tens place. | Same Same Different  5 7 . 6 2  5 7 . 2 8 9  Therefore:  57.62 > 57.289  Because the 6 in the tenths place is greater than the 2 in the tenths place. |

1. **Ordering Decimals:** Least to greatest or greatest to least

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| Step 1: Line up the numbers by place value. **Be sure to line up the decimal points.** | Step 2: Compare the digits in the greatest place. Compare the digits in the next greatest place and continue. | Step 3: Rewrite the numbers in the required order. (Greatest to Least OR Least to Greatest) |
| Decimal Example:  4.28  42.8  4.29 | 4 . 2 8  4 2 . 8  4 . 2 9  \*\* 42.8 is automatically greatest because it has a digit in the tens place.  \* 4.28 is least because the 8 in the hundredths place is less than the 9 in the hundredths place. | Greatest to Least:  42.8; 4.29; 4.28  Least to Greatest:  4.28; 4.29; 42.8 |
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