Grade 5 Unit 1 test: Decimal place value and powers of ten

Name _____ Date _____ Period _____

12 questions, 38 points

1. A science class weighs four seeds, in grams. Sunflower: sixty-two thousandths. Pea: 0.2 + 0.006. Squash: two hundred sixty thousandths. Corn: $\frac{6}{10} + \frac{2}{1000}$. (3 points)

(a) Write each weight in standard form.

(b) List the seeds from lightest to heaviest.

2. Write the value of each number. Then put the four numbers in order from smallest to largest.

5×10^5 48×10^4 510×10^3 $5{,}000 \times 10^1$ (3 points)

3. One sheet of stickers weighs 4.062 grams. (3 points)

(a) A pack holds 100 sheets. How much do the sheets in a pack weigh?

(b) A carton holds 10^4 sheets. How much do the sheets in a carton weigh?

4. A box of 100 crayons weighs 865 grams. Every crayon weighs the same. (3 points)

(a) How much does one crayon weigh?

(b) The crayons in the box are split into 10 equal packs. How much does one pack weigh?

(c) Ethan says one crayon weighs 0.865 grams. What mistake did he make?

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5. Find the value of each expression. Then list the letters in order from least to greatest value.

A: $5{,}040 \div 10^3$ B: $4{,}500 \div 10^3$ C: $540 \div 10^2$ D: $50.4 \div 10^2$ (3 points)

6. Diego says that every three-digit base five numeral is less than every three-digit base ten number. (3 points)

(a) What is the smallest three-digit number in base ten?

(b) What is the largest three-digit numeral in base five? Write it in base ten.

(c) Is Diego right? Explain.

7. (4 points)

(a) Find 0.709×10^4.

(b) Find 0.709×10^5. How many times as much as your answer to (a) is it? Explain.

(c) In 0.709 the 9 is worth 9 thousandths. What is the 9 worth in your answer to (a)?

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8. A number has a 3 in the ones place. It has a 4 worth 0.4, and another 4 worth one hundredth as much as the first 4. Every other digit is 0. (3 points)

(a) Write the number in standard form.

(b) Write it in word form.

(c) Write it in expanded form with fractions.

9. Zoe thinks of a number with two decimal places. Rounded to the nearest tenth, it is 6.5. Rounded to the nearest whole number, it is 6. List every number Zoe could be thinking of. (3 points)

10. Maya weighs her school backpack. The scale shows 12.396 pounds. (3 points)

(a) Round the weight to the nearest whole number and to the nearest tenth.

(b) Round the weight to the nearest hundredth.

(c) Ben's backpack weighs a different amount. His scale also shows three decimal places. His weight rounds to the same three answers as Maya's. Give one weight Ben's backpack could have.

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11. A baseball team sold 2,800,000 tickets this season. (3 points)

(a) Write the number of tickets in expanded form using powers of ten. Leave out the zero terms.

(b) Last season the team sold 10^6 fewer tickets. How many tickets did it sell last season? Write the answer as a number and in expanded form using powers of ten.

12. In science class, Elena has a balance scale and six weights. They weigh 1, 2, 4, 8, 16 and 32 grams, one of each. (4 points)

(a) Elena balances a pear with the 32, 8, 4 and 1 gram weights. How many grams is the pear? Write its weight in base two.

(b) An apple weighs 54 grams. Which weights balance it? Write 54 in base two.

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