a. Which is greater, 0.01 or 0.001? Explain. Draw a picture to illustrate your explanation.
b. Which is greater, 0.03 or 0.007? Explain. Draw a picture to illustrate your explanation.
c. Which is greater, 0.025 or 0.052? Explain. Draw a picture to illustrate your explanation.
d. Which is greater, 0.13 or 0.031? Explain. Draw a picture to illustrate your explanation.
e. Which is greater, 0.203 or 0.21? Explain. Draw a picture to illustrate your explanation.
Commentary

The purpose of this task is for students to compare decimal numbers using pictures or diagrams. Using such visual representations helps develop a deep understanding of the base-ten system and underscores that the relative place value of the digits can be more important than the value of the digits as numbers between 0 and 9. For students to be able to compare decimal numbers using these kinds of pictures, they should have familiarity with using base-ten blocks or bundled objects to represent decimal numbers in multiple ways. Tasks that can help develop this understanding are:

5.NBT Which number is it?

and

5.NBT Tenths and Hundredths.

Students should have access to colored pencils and graph paper.

Solutions

Solution: 1

a. $0.01 > 0.001$ because $0.01$ is 10 times bigger than $0.001$.

   In the picture, a small square represents $0.001$ and ten of those small squares represents $0.01$.

   ![Diagram](image1)

   ![Diagram](image2)

b. $0.03 > 0.007$ because it takes 10 thousandths to make 1 hundredth, so 7 thousandths is smaller than 1 hundredth which is smaller than 3 hundredths.

   In the picture, a small square represents $0.001$ and ten of those small squares represents $0.01$.

   ![Diagram](image3)

   ![Diagram](image4)
c. $0.025 < 0.052$ because there are more hundredths in $0.052$ than in $0.025$, and hundredths are 10 times bigger than thousandths.

In the picture, a small square represents $0.001$ and ten of those small squares represents $0.01$. The pictures of the two numbers are stacked to make comparing them easier.

![Image showing comparison](image)

d. $0.13 > 0.031$ because it takes 10 hundredths to make 1 tenth, so 0.031 is less than 1 tenth and 0.13 is greater than 1 tenth.

In the picture, a small square represents $0.001$, ten of those small squares represents $0.01$, and 100 of those small squares represents $0.1$. The pictures of the two numbers are stacked to make comparing them easier.

![Image showing comparison](image)

e. Lastly, $0.21 > 0.203$. They both have 2 tenths, but 0.21 has 1 hundredth, thereby making it greater than 0.203 which has 0 hundredths. In the picture, a small square represents $0.001$, ten of those small squares represents $0.01$, and 100 of those small squares represents $0.1$. 

![Image showing comparison](image)
Note: pay close attention to the students’ illustrations. They may make the 3 in 0.203 one base ten unit less than the 2. In this case, it will appear that 0.203 is greater than 0.21.