MTH-2010, SPRING 2015
DR. GRAHAM-SQUIRE

MINITEST 1 REVIEW KEY

- Section 1.1: #7

  Ans: The green bags need to be grouped in a larger bag of ten, to represent one hundred. Also, some of the toothpicks on the side are not grouped into tens, even though there are more than ten.

- Section 1.2:
  - #10,
    Ans: Yes, it is legitimate. The other tick marks should be 9.9991, 9.9992, etc. up to 9.9999
  - #14 **Ans**: there are a variety of correct answers, come check with me individually if you have a question about any of these (or see video answer).

- Section 1.3:
  - #6, **Ans**: He might think 178>25. To correct him you could rely on place value (the 2 is bigger than the one in the tenths place) or add a zero to the 0.25 to make it 0.250, then he could see that 250>178.
  - #7, **Ans**: There are a variety of correct answers. One is 3.2405.
  - #13 **Ans**: (a) Make a number line from -1 to 1, with all of the ticks representing tenths (-1, -0.9, -0.8, etc up to 0.8, 0.9, 1). Then put tick marks at the appropriate places, with -0.06 landing between -0.1 and 0, a little closer to -0.1. See video.
    (b) From least to greatest they are -0.7, -0.06, 0, 0.6, 1

- Section 1.4:
  - #4, **Ans**: No. Using that method 0.1492 would round to 0.15 then to 0.2, but 0.1492 should really round down to 0.1.
  - #6 **Ans**: No. You should assume the weight is between 11, 500 and 12, 500.

- Section 2.2:
  - #8, **Ans**: 4/3
  - #12, **Ans**: (a) Ben has the right answer but wrong reasoning- By his reasoning, two larger pieces would give you the same fraction as two smaller pieces, and even my 2 year-old daughter knows that ain't true. At least when it comes to cake.
    (b) Seyong's reasoning is flawed because it is confused about what the whole is. The whole is all of the cake, not one of the cakes.
    (c) Valid reasoning would be to make one smaller piece plus one larger piece be considered the "equal part". Then there are twelve equal parts and Marla ate one of them.

- #15, **Ans**: The whole can easily be misinterpreted in fraction diagrams with improper fractions. A number line is probably a better way to go. See video for some examples
- #22 **Ans**: (a) The first fraction is 800/1500, reduces to 8/15. The second reduces to 7/15.

  (b) Multiple answers

  (c) Jamie's answer is not always correct, but it will be correct if the two schools have the same enrollment in their respective after-school programs.

• Section 2.3:
  - #3, **Ans**: For the easiest common denominator, just multiply each fraction by n/n, where n is the denominator of the other fraction. In terms of math drawings, when you get a common equal part, you are dividing each original part into the number of pieces given by the denominator of the *other* fraction. The original lines stay the same, but you divide each part into more parts.
  - #9, **Ans**: Plot 0 and 1, with nine tick marks in between. 0.3 will land on the third one, and 3/5=0.6 will land on the sixth one.
  - #11, **Ans**: Divide the space between 0 and 2/7 into two parts. Then the tick mark in the middle wil be 1/7. Now divide the 1/7 into three equal parts, so each of those will represent 1/21. Mark off 7 of those spaces to get to 7/21=1/3. See video.
  - #17, **Ans**: It should NOT be 2.2. There are only 8 spaces between the 2 and the 3, so each tick represents 1/8. So it is 2 and 2/8, or 2 and 1/4, or 2.25.
  - #21 **Ans**: (a) 3/4 of a recipe. Draw two rectangles, one shaded with 4/6 and the other with 3/6 to illustrate the concept.

    (b) 2/3 appears as 4/6 and 1/2 appears as 3/6.

• Section 2.4:
  - #7, **Ans**: 27/28. Both fractions are one part away from 1, but 1/28 is a smaller part than 1/20, so 27/28 is closer to one, and thus larger.
  - #9, **Ans**: $23/84 \approx 0.2738$ and $29/98 \approx 0.2959$, so the number 0.28=7/25 is between the two. Make a number line with 0.26, 0.27, 0.28, 0.29 and plot all of the points.
  - #18, **Ans**: (a) Yes it is valid because you are canceling a ten from top and bottom.

    (b) No, it is not valid, because the zero in the middle can not be rewritten as a multiplication.

    (c) In the first example, the zero at the end can be represented as multiplication by ten (that is, $30 = 3 \times 10$), whereas in (b) you can't do that.
  - #20 **Ans**: (a) For example, 3/5 is less than 4/6. In general, the fractions where you have added 1 will be larger.

    (b) Frank is correct, but his reasoning is not. You have more parts, but each part is also a little bit smaller, and those two counteract each other, so you need a stronger argument. For example, 3/5 has more parts than 2/3, but 2/3 is still a larger fraction.

    (c) A better argument would be that when you add one to both the numerator and denominator, you are still the same number of parts from 1, but now each of those parts is a little smaller, so you are closer to one, and thus a larger fraction.

- Section 2.5:
  - #3, **Ans**: 20 g
  - #8, **Ans**: (a) 90%

    (b) 10% of 250 is 25, so if you subtract 250-25, that is 225. Subtracting 100%-10% is 90%.

    (c) 60 percent is the answer. 10% of 1600 is 160, and if you multiply that by 6 you get 960. So 960 is 6×10%=60% of 960. Could also notice that 50 percent is 800, and go from there.
  - #12, **Ans**: 85%
  - #20 **Ans**: (a) Tom is not correct, because the percent of the total students is using a different *whole* than the 20% and 30%.

    (b) (i) No. it will be 140/500=28%

    (ii) No, it will be 110/500=22%

    (iii) DeShun will only be correct if the two school have the exact same size.