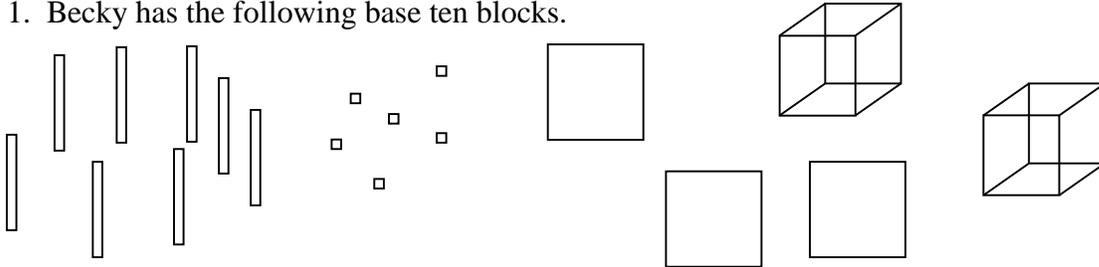


There are 9 problems on this exam. Only those problems that say “explain” require explanations. Answers that require explanations will be given at most half credit without the required explanation. Be sure to follow all directions.

1. Becky has the following base ten blocks.



- (a) If the flat represents the whole, what number does all of Becky’s base ten blocks represent? Briefly explain. (5 points)
- (b) If the rod represents $\frac{1}{100}$, what number does all of Becky’s base ten blocks represent? Briefly explain. (5 points)
- (c) How can Becky represent 4.3 using some of the blocks she has available? Briefly explain. (5 pts)
- (d) If Becky adds 4 rods and 6 cubes to the base ten blocks she already has, what will be her sum if the flat is the whole? Briefly explain. (5 points)

2. Draw base ten blocks to model $3.26 - 1.47$. Use the flat as your whole. Briefly explain. (8 points)

3. Use the instructional algorithm to calculate 1.5×2.3 . Include all necessary work to explain. (8 points)

4. Model $1.53 \div 0.36$. Use the flat as your whole. Express your answer as a mixed number. Briefly explain. (10 points)

5. Indicate whether the decimal representation of each of the following is terminating, repeating, or neither. Explain without actually finding the decimal representation. (3 points each)

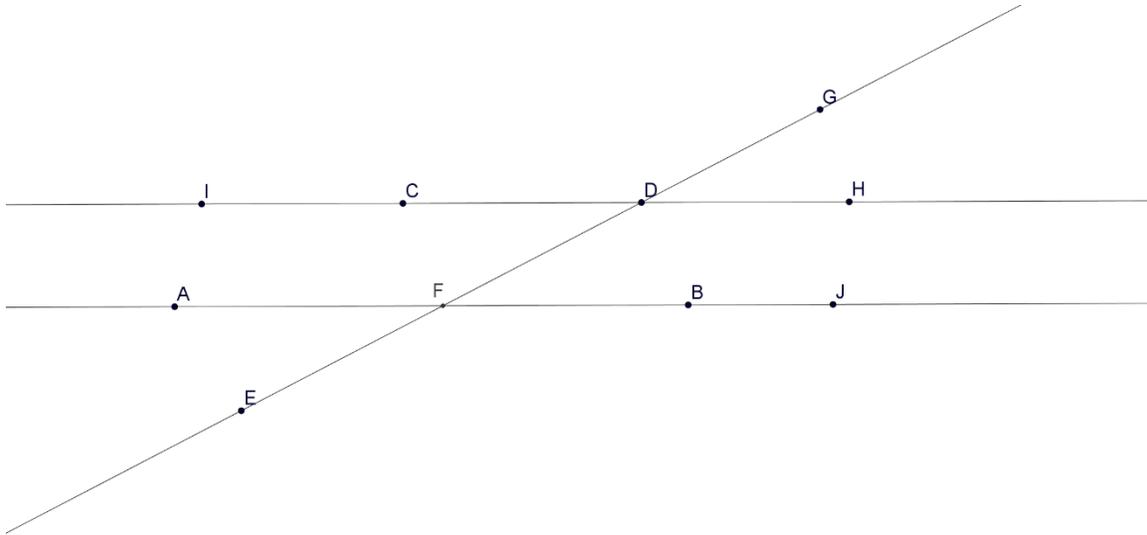
(a) $\frac{56}{70}$

(b) $\frac{19}{28}$

6. Convert $0.\overline{26}$ to a rational number in simplest form. Show all necessary steps to explain. (6 points)

7. Convert $\frac{28}{175}$ to a decimal without using a calculator. Show all necessary steps to explain. (6 points)
8. A jar contains 50 red marbles, 25 blue marbles, and 75 white marbles. Determine the following. Express each ratio in simplest form and express all percentages exactly. (5 points each)
- (a) What is the ratio of blue marbles to white marbles in the jar? Explain.
- (b) What percent of the marbles in the jar are blue? Explain.
- (c) What is the ratio of red marbles to non-red marbles? Explain.
- (d) How many more blue marbles would we have to add to the jar in order for the ratio of blue to white to be $\frac{2}{5}$? Explain.
- (e) If we remove 5 blue marbles from the jar what is the percentage change in the number of blue marbles? Explain.

9. Use the figure below where lines \overleftrightarrow{AB} and \overleftrightarrow{CD} are parallel to determine the following.



- (a) Without measuring explain why $\angle GDC$ and $\angle GFA$ have the same measure. (3 pts)
- (b) Without measuring explain why $\angle DFB$ and $\angle AFE$ have the same measure. (3 pts)
- (c) List all angles in this picture that are congruent to $\angle FDH$. (4 pts)
- (d) List all names for angle $\angle DFB$. (4 points)
- (e) Use your protractor to determine the measure of $\angle EFB$. (2 points)