

Minitest 1A - MTH 2010

Dr. Graham-Squire, Fall 2014

Name: Key

I pledge that I have neither given nor received any unauthorized assistance on this exam.

(signature)

DIRECTIONS

1. Show all of your work and use correct notation. A correct answer with insufficient work or incorrect notation will lose points.
2. Clearly indicate your answer by putting a box around it.
3. Calculators, cell phones and computers are not allowed on this test.
4. Make sure you sign the pledge.
5. Number of questions = 6. Total Points = 30.

1. (5 points)

(a) Compare the fractions by finding the *least* common denominator: $\frac{9}{10}$ versus $\frac{5}{6}$

$$\frac{9 \cdot 3}{10 \cdot 3} = \frac{27}{30}$$

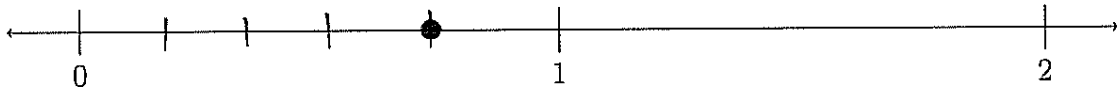
$$\frac{5 \cdot 5}{6 \cdot 5} = \frac{25}{30}$$

$$\frac{27}{30} > \frac{25}{30}$$

so

$\frac{9}{10}$ is bigger

(b) Plot the fraction $\frac{4}{5}$ on the number line below.



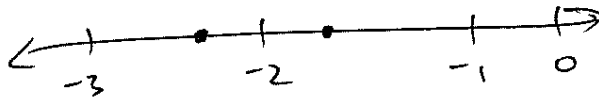
(c) Reduce the fraction to lowest terms: $\frac{18}{30} = \frac{3 \cdot 6}{5 \cdot 6} = \frac{3}{5}$

(d) Round 2,309.4348 to the nearest hundredth.

2,309.43 b/c 4 rounds down

(e) Compare the numbers (that is, write $<$, $>$, or $=$ in between them):
-1.8 versus -2.3

$$-2.3 < -1.8$$



2. (5 points) You are told that a rectangle has a width of 3 inches and a length of 4 inches, where each measurement is rounded to the nearest whole number. Which of the following is a possible value of A , where A is the area of the rectangle? Explain your answer or show your work to get full points.

- ~~X~~(a) 8.5 square inches
- (b) 9 square inches \rightarrow if correct, get 5
- ~~X~~(c) 16 square inches
- ~~X~~(d) 16.5 square inches

• 3 inches means actual measurement is between \checkmark
2.5 and 3.5

• 4 inches \Rightarrow between 3.5 and 4.5 \checkmark

$$\begin{array}{r} 2 \\ 2.5 \\ \times 3.5 \\ \hline 125 \\ 75 \\ \hline 8.75 \end{array}$$

\checkmark is smallest it could be, so it could not be

8.5.

$$\begin{array}{r} 3.5 \\ \times 4.5 \\ \hline 175 \\ 140 \\ \hline 15.75 \end{array}$$

15.75 is biggest it could be, so it could not be 16 or 16.5 \checkmark

3. (5 points) The table below summarizes the discounts you can get from local stores.

You plan to buy two basketballs, each of which has a regular price of \$15.

Store #1: \$3 off the price of each basketball.

Store #2: $\frac{1}{3}$ off the price of each basketball.

Store #3: Buy one basketball, get the second for half price.

Store #4: 20% off your total purchase.

At which store can you buy the basketballs for the least amount of money? Explain your reasoning and/or show your work.

Store #1: \$3 off each \Rightarrow \$12 per ball \Rightarrow \$24 total

Store #2: $\frac{1}{3}$ off $\Rightarrow 15 \cdot \frac{1}{3} = \frac{15}{3} = \5 off each

\Rightarrow each ball is \$10, \Rightarrow \$20 total

Store #3: 1st ball is \$15, second is $\frac{15}{2} = \$7.5$

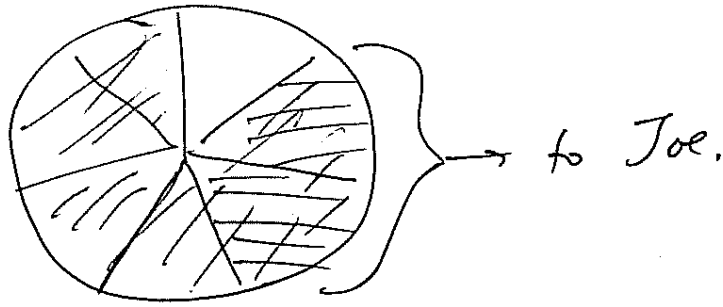
total is $15 + 7.5 = \$22.50$

Store #4: 20% off of \$30 is $0.2 \cdot 30 = \$6$

so total is $\$30 - \$6 = \$24$

Store #2 has best deal

4. (5 points) Jane has $\frac{6}{7}$ of a pizza, and wants to give $\frac{1}{3}$ of what she has to Joe. What fraction of the whole pizza will Jane have left for herself? Use a math diagram to help explain your answer.



She has 6 pieces, so $\frac{1}{3}$ of her 6 pieces
will be 2 pieces. She will give 2 slices
to Joe, leaving $\frac{4}{7}$ for herself

5. (5 points) Compare the fractions (that is, put a symbol $>$, $<$ or $=$ in between them). You can use any method you choose, but you should avoid using common denominators, cross-multiplying, or reducing to decimals, as that could take you a long time. You can get full points without showing any work, but showing work or giving an explanation can get you partial credit if your answer is wrong.

(a) $\frac{5}{8}$ versus $\frac{7}{12}$

$$\boxed{\frac{5}{8} > \frac{7}{12}}$$

$\frac{5}{8}$ is $\frac{1}{8}$ more than $\frac{1}{2} = \frac{4}{8}$

so $\frac{5}{8}$ is bigger

$\frac{7}{12}$ is $\frac{1}{12}$ more than $\frac{1}{2} = \frac{6}{12}$

b/c $\frac{1}{8} > \frac{1}{12}$

(b) $\frac{97}{100}$ versus $\frac{35}{38}$

Both are 3 parts from a whole, but $\frac{1}{100} < \frac{1}{38}$, so $\frac{97}{100}$ is closer to one than $\frac{35}{38}$ is. so

$$\boxed{\frac{97}{100} > \frac{35}{38}}$$

(c) $\frac{5}{21}$ versus $\frac{7}{24}$

$\frac{5}{21} < \frac{1}{4} = \frac{5}{20}$

$\frac{7}{24} > \frac{1}{4} = \frac{6}{24}$

so $\frac{5}{21} < \frac{1}{4} < \frac{7}{24}$

$$\Rightarrow \boxed{\frac{5}{21} < \frac{7}{24}}$$

(d) $\frac{6}{11}$ versus $\frac{6}{13}$

Same number of parts, but $\frac{6}{13}$ has smaller parts.

so $\boxed{\frac{6}{11} > \frac{6}{13}}$

(e) $\frac{21}{22}$ versus $\frac{56}{57}$

Both are one part from a whole but $\frac{56}{57}$ is closer to ~~one~~ 1 because its parts are smaller

(b/c $57 > 22$).

so $\boxed{\frac{56}{57} > \frac{21}{22}}$

6. (5 points) There are 200 marbles in a bucket. Of the 200 marbles, 80% have swirled colors and 20% have solid colors. How many swirled marbles must be removed so that 75% of the remaining marbles are swirled?

$$80\% \text{ of } 200 \text{ is } 0.8 \cdot 200 = 160 \text{ swirled}$$

$$20\% \text{ of } 200 \text{ is } 40 \text{ solid}$$

If 75% of marbles are swirled, that means

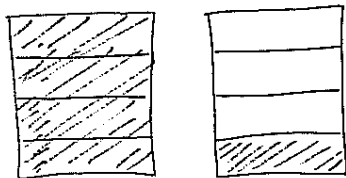
25% are solid.

$$25\% \rightarrow 40$$

\Rightarrow 100% \rightarrow 160 so we would need 160 total.

Thus we would have to remove 40 swirled
marbles to have 120 swirled, 40 solid

Extra Credit(1 point) What fraction does the following diagram represent? Explain your answer.



Either $\frac{5}{8}$ or $\frac{5}{4}$, depending

on what you consider to be the whole.

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