

Math 141, section _____ NAME: _____

Test 3, version A, Spring 2012 100

Chapters 6, 7 & 8

Do NOT use a calculator on this test!!

Seat: _____

Full credit is based on work shown!

9pts

1. a. Compare the size of $\frac{4}{7}$ and $\frac{5}{9}$, using **two different methods** that we discussed in class.

Which is bigger? _____

b. Find **two fractions between** $\frac{4}{7}$ and $\frac{5}{9}$, showing your work.

6pts

2. **Show** how to illustrate $\frac{2}{5}$ of $\frac{3}{4}$, using a rectangular diagram. Clearly label the diagram to indicate each fraction and the answer.

5pts

3. When you multiply whole numbers the product is larger than the factors (except for 0 and 1). Is this also true for **improper fractions**? _____ **Explain** and give an example:

4pts

4. Is the set of **positive fractions** closed for **division**? _____ (Note, this excludes division by zero.)
Explain:

4pts

5. Write a brief description of the article with video clips, in module 6, including the main topic discussed and the conclusion of the article.

10pts

6. We studied four different ways to illustrate **integer arithmetic**.

a. $(+3) - (+7) = \underline{\hspace{2cm}}$.

b. Use a **number line** and a **set model** to illustrate your answer to part a.c. Building from the fact that $(2)(2) = 4$, finish this **number pattern** to illustrate why $(-2)(2) = -4$.

$(2)(2) = 4$

Also explain the pattern that each column demonstrates.

$(1)(2) = 2$

$(0)(2) = \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

4pts

7. Simplify each of the following using rules of exponents. Show your work to illustrate the rule used.

a. $\frac{6^{-5}}{6^{+7}} =$

b. $5^9 \cdot 5^{-3}$

6pts

8. Show your steps to illustrate an easy way to divide these numbers; write your answer in scientific notation.

$$\frac{1.2 \times 10^3}{6.0 \times 10^{-5}}$$

9pts

9. Write each decimal as an equivalent fraction. Simplify, if possible.

a. 0.36

b. 0.363636...

c. 0.41383838....

12pts

10 a. **Explain** an easy method to **mentally calculate** 25 % of any number. Also give an example.b. **Explain** an easy method to **mentally calculate** 40 % of any number. Also give an example.c. **Explain** an easy method to **mentally calculate** $33\frac{1}{3}\%$ of any number. Also give an example.

6pts

11a. Show an easy way to mentally calculate this product using a fractional equivalent.

$$150\% \text{ of } 30 =$$

b. **Estimate** using compatible numbers:

$$\left(47\frac{1}{3}\right) \div \left(5\frac{2}{3}\right)$$

6pts

12. **Solve using a proportion, showing your work.**

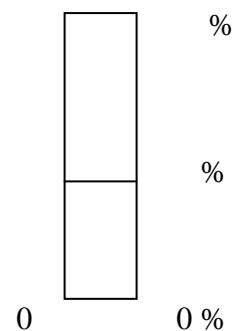
If a product costs 58 cents for 24 ounces, what should it cost for 36 ounces?

9 pts

13a. 78 is 40 % of what number?

Solve using a simple algebraic equation that is not a proportion. Show your work.

b. Illustrate this problem by shading and putting appropriate numbers on this diagram.



10pts

14a. State the theorems from sections 7.1 & 7.2 that let you decide whether a fraction will have a terminating decimal representation.

b. Using the theorem from part a, determine whether each of the following fractions will be a terminating decimal. [Do not divide to convert the fraction to a decimal.]

$$\frac{5}{300}$$

Explain:

$$\frac{45}{300}$$

Explain:
