<u>**Concepts on Test #2 – M311 Sp12**</u>
Fractions/Mixed Numbers
- Add/Subtract/Multiply/Divide
- Change a fraction to a decimal
- Compare Fractions & Mixed Numbers
- Solve Algebraic Equations using proper fractions

Ex 1: Convert the following to a decimal
a) $^{11}/_{12}$ b) $^{5}/_{8}$ c) $^{6}/_{7}$ (Round to the nearest 100th)

Ex 2: Compare the following using <, > or =. Show work to get 2 numbers to compare.
a) $^{5}/_{7}$ _____ $^{7}/_{12}$ b) $1\,^{5}/_{8} + 2\,^{1}/_{3}$ _____ $4\,^{1}/_{3} - 1\,^{5}/_{8}$
c) $1\,^{2}/_{3} \cdot 5$ _____ $5 \div\,^{3}/_{5}$

Ex 3: Solve and check
a) $^{2}/_{3} + x = 5\,^{1}/_{3}$ b) $^{1}/_{4} + x =\,^{7}/_{8}$

Decimals
- Add/Subtract/Multiply/Divide
  - For division pay attention to:
    - ✓ Order
    - ✓ Decimal coming up into the quotient
    - ✓ Rounding only when asked
    - ✓ Showing repeating decimals with bar over repeated number(s)
  - For subtraction pay attention to zeros in the top number and borrowing
  - For multiplication multiply ignoring the decimals & then put total number of decimals in from far right counting to the left
- Writing decimals in words
  - Place value
- Writing a number from words
  - Spell 90 & 40 correctly – ninety & forty
  - Hyphens between family names and ones place – 47 is forty-seven
- Rounding Decimals
  - Make sure that you can round through too
- Comparing decimals
- Solving algebraic equations with decimals

Ex 4: Add/Subtract. Work must be shown for credit.
a) $5{,}102.02 + 953.8$ b) $45{,}084.2 - 399.98$

Ex 5: Multiply. Work must be shown for credit.
a) $0.12(0.007)$ b) $(2.57)(0.36)$

Ex 6: Divide. For any quotient with more than a two digit repeat, round to the nearest 1000th. Long division should be used, not fractions.
a) $15 \div 30$ b) $1.2 \div 11$ c) $2 \div 0.04$

Ex 7: Write the following in words: 97,503.0243

Ex 8: Write the following using digits:
   Two hundred seven million, seven hundred thousand, forty-five and one hundred ninety-two millionths

Ex 9: Round the following number to the specified place value: 299,473.089
a) tens   b) ten thousands   c) hundredths

Ex 10: Compare the following using <, > or =
a) 0.025 _____ 0.035 b) 2.035 _____ 1.035 c) $^{2}/_{5}$ _____ 0.4

Ex 11: Solve and Check.
a) $0.92 + x = 2.3$ b) $50 + x = 172.3$

Natural/Counting & Whole Numbers
- Difference between the natural and whole numbers
- Reading & Writing Numbers
- Add/Subtract/Multiply/Divide
  - Multiplying & Dividing Factors of 10
- Comparing with $<, >, =$
- Solving Algebraic Equations

Ex 12: Is the following set of numbers a set of whole numbers or natural/counting numbers? Why?   {0, 17, 38, 107, 984}

Ex 13: Multiply using factors of 10 knowledge.
a) $100 \times 2,000$ b) $500 \times 25,000$

Ex 14: Divide using factors of 10 knowledge
a) $12,000,000 \div 2,000$ b) $10,000 \div 100$

Ex 15: Solve and check
a) $4,875 + x = 94,975$ b) $950 = x + 352$ c) $x - 2 = 9$

Word Problems
- Setup & Writing Expressions in Words 1st
- Geometry Problems
  - Perimeter & Area
    - ✓ Squares: P = add all sides & A = side times side
    - ✓ Rectangle: P = add both lengths and both widths & A = multiply length and width
    - ✓ Triangle: P = add all three side lengths & A = one half times base times height
    - ✓ Circle: C = pi times twice radius & A = pi times radius squared
             pi= 3.14 (this time around)
- Addition Problems
  - From tables
  - Using words that means addition to give the expression

Ex 16: Give only the setup for the following and how you would build an expression.
  I am going to the grocery store to purchase bread, milk, cheese, salt and flour.
  How much will I pay? (Yes, I know there are no numbers – that's the point!)

Ex 17: Find the area of a triangle that has a base of 2 inches and a height of $^3/_4$ inches.

Ex 18: Find the circumference of a tree that has a diameter of 20.3 inches. Use 3.14 as
  an approximation for pi.

Ex 19: Given the following table of data answer the question using setup and giving an
  expression only in words following by an expression that you simplify to find the
  answer.
           Find the total area of California and Nevada.

State	Area in Square Miles
California	163,695
Oregon	98,380
Washington	71,300
Arizona	113,998
Nevada	110,560
Idaho	83,570