Sponge Activity #1 for Mathematical Properties for UIL Number Sense

Lesson Goal: Students will learn to use the commutative, associative, and distributive properties in ways to solve math problems using Number Sense Tests.

Time: No more than 15 minutes.

Course: Algebra I & Algebra II

TEKS Addressed:
Algebra I (3)(A)(B)Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. The student is expected to: use symbols to represent unknowns and variables; and look for patterns and represent generalizations algebraically.
Algebra II (2)(A) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to: use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations.

Materials Needed:

1. Pencil.
2. Practice problems (attached)
3. Answer Key (attached)

Procedures:

This Activity (Including grading time) should take no longer than 15 minutes either at the beginning or end of the class period. If this work is to be graded, give extra points for speed.

1. Give the Problem Worksheet to each Student.
2. Time the Students taking the Worksheet. (No more than 10 min.)
3. Grade the Worksheet pointing out the hints for each problem.

Lesson #1 Work each of these problems as quickly as possible.

Estimate #10 to plus or minus 10%.

(1) $2010 + 2009 =$ _____

(2) $2009 \times 11 =$ _____

(3) $9002 - 2010 =$ _____

(4) $2010 \div 25 =$ _____ (decimal)

(5) $\frac{3}{5} \div \frac{8}{15} =$ _____

(6) $4 \times 2\frac{2}{3} =$ _____ (mixed number)

(7) $16\ \% =$ _____ (proper fraction)

(8) $3 + (4 \times 5 - 6) \div 7 =$ _____

(9) $\frac{3}{8} =$ _____ (decimal)

(10) $2009 + 2010 + 2910 =$ _____

Answers to Lesson #1

1) Add by starting on the left and working to the right.
2) Multiplying by 11
   a. Put a zero in front and in back of the number
   b. (020090)
   c. Add pairs of digits starting on the right.
   d. 0+9, 9+0, 0+0, 0+2, 2+0
3) Subtract with borrowing.
4) Dividing by 25
   a. 1/25 = 4/100
   b. Multiply 2010 by 4
   c. Move Decimal Place 2 units left.
5) Leave, Change, Flip
   a. $\frac{3}{5} x \frac{15}{8}$
   b. Cancel the 5's
   c. $\frac{3}{1} x \frac{3}{8} = \frac{9}{8}$
6) Make Improper
   a. $4 x 2\frac{2}{3} = 4 x \frac{8}{3} = \frac{32}{3} = 10\frac{2}{3}$
7) $16\% = \frac{16}{100} = \frac{4}{25}$
8) Order of Operations
   a. 3 + (4 x 5 - 6) ÷ 7
   b. 3 + (20 - 6) ÷ 7
   c. 3 + 14 ÷ 7
   d. 3 + 2
   e. 5
9) Memorize 1/8 = .125; 3(.125) = .375
10) Estimation
   a. Round to the nearest 100
   b. 2000 + 2000 + 2900 = 6900

(1) 4019

(2) 22099

(3) 6992

(4) 80.4

(5) 1.125, $\frac{9}{8}$, $1\frac{1}{8}$

(6) $10\frac{2}{3}$

(7) $\frac{4}{25}$

(8) 5

(9) .375

***(10) 6583 – 7275**

Sponge Activity #2 for Mathematical Properties for UIL Number Sense

Lesson Goal: Students will learn to use the commutative, associative, and distributive properties in different ways to solve math problems using Number Sense Tests.

Time: No More than 15 Minutes

Course: Algebra I & Algebra II

TEKS Addressed:

Algebra I (3)(A)(B)Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. The student is expected to: use symbols to represent unknowns and variables; and look for patterns and represent generalizations algebraically.
Algebra II (2)(A) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to: use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations.

Materials Needed:

1. Pencil.
2. Practice problems (attached)
3. Answer Key (attached)

Procedures:

This Activity (Including grading time) should take no longer than 15 minutes either at the beginning or end of the class period. If this work is to be graded, give extra points for speed.

1. Give the Problem Worksheet to each Student.
2. Time the Students taking the Worksheet. (No more than 10 min.)
3. Grade the Worksheet pointing out the hints for each problem.

Lesson #2 Work each of these problems as quickly as possible.

Estimate #10 to plus or minus 10%.

(1) $210 + 21 - 2010 =$ _____

(2) $\frac{3}{8} \times \frac{4}{9} =$ _____

(3) $\$20.10 \div 3 = \$$ _____

(4) $2.01 - 2\frac{1}{10} + 21 =$ _____ (decimal)

(5) $\frac{4}{9} \div .3 =$ _____

(6) $44\% =$ _____ (proper fraction)

(7) $9 \times 6 \div 3 - 6 + 9 =$ _____

(8) $34 \times 43 =$ _____

(9) $63 \times 15 - 82 \times 15 =$ _____

(10) $753 - 936 + 842 =$ _____

Answers to Lesson #2

1) Notice that answer will be negative
   a. -2010 + 231
   b. Subtract with borrowing.
2) $\frac{3}{8} x \frac{4}{9} = \frac{1}{2} x \frac{1}{3} = \frac{1}{6}$
3) Long Division
   a. Write answer to the nearest penny.
4) Change Mixed Number to Decimal
   a. 2.01 - 2.1 + 21
   b. -.09 + 21
   c. 20.91
5) Change Decimal to Fraction
   a. $\frac{4}{9} \div \frac{3}{10}$
   b. Leave, Change, Flip
   c. $\frac{4}{9} x \frac{10}{3} = \frac{40}{27}$
6) $44\% = \frac{44}{100} = \frac{11}{25}$
7) Order of Operations (Divide First to Make easier)
   a. 9 x 6 ÷ 3 - 6 + 9
   b. 9 x 2 - 6 + 9
   c. 9 x 3 - 6
   d. 27 - 6 = 21
8) Use backwards FOIL (Right to Left)
   a. 3 x 4 = 12
      i. (Write 2 Carry 1)
   b. 4 x 4 + 3 x 3 + 1 = 16 + 9 + 1 = 26
      i. (Write 6 Carry 2)
   c. 3 x 4 + 2 = 14
      i. (Write 14)
9) Factor (Answer is negative)
   a. (63 - 82)15
   b. (-19)15
   c. Use Reverse FOIL
   d. 9 x 5 = 45
      i. Write 5 Carry 4
   e. 1 x 5 + 1 x 9 + 4 = 18
      i. Write 8 Carry 1
   f. 1 x 1 + 1 = 2
10) Estimation
   a. Round to the nearest 10
   b. 750 - 940 + 840
   c. 750 - 100 = 650

(1) — 1779

(2) $\frac{1}{6}$

(3) $6.70

(4) 20.91

(5) $\frac{40}{27}, 1\frac{13}{27}$

(6) $\frac{11}{25}$

(7) 21

(8) 1462

(9) — 285

***(10) 627 — 691**

Sponge Activity #3 for Mathematical Properties for UIL Number Sense

Lesson Goal: Students will learn to use the commutative, associative, and distributive properties in different ways to solve math problems using Number Sense Tests.

Time: No More than 15 Minutes

Course: Algebra I & Math Models

TEKS Addressed:

Math Models (2)(B)The student uses graphical and numerical techniques to study patterns and analyze data. The student is expected to analyze numerical data using measures of central tendency, variability, and correlation in order to make inferences.
Algebra I (4)(B) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to use the commutative, associative, and distributive properties to simplify algebraic expressions.

Materials Needed:

1. Pencil.
2. Practice problems (attached)
3. Answer Key (attached)

Procedures:

This Activity (Including grading time) should take no longer than 15 minutes either at the beginning or end of the class period. If this work is to be graded, give extra points for speed.

1. Give the Problem Worksheet to each Student.
2. Time the Students taking the Worksheet. (No more than 10 min.)
3. Grade the Worksheet pointing out the hints for each problem.

Lesson #3 Work each of these problems as quickly as possible.

Estimate #20 to plus or minus 10%.

(11) $17^2 =$ _____

(12) If 8 ounces of M&M's costs \$1.10 then $1\frac{1}{2}$ pounds of M&M's will cost \$_____

(13) The GCD of 48 and 57 is _____

(14) $(58 + 79 + 66) \div 4$ has a remainder of _____

(15) $2\frac{1}{2}$ bushels is equivalent to _____ pecks

(16) The median of 1, 5, 2, 3, 3, 2, 1, & 4 is _____

(17) The greatest prime number less than 99 is _____

(18) $11^3 =$ _____

(19) MMX ÷ V = _____ (Arabic Numeral)

(20) $\sqrt{1243} \times 3421 =$ _____

Answers to Lesson #3

11) Memorize squares to 35
   a. $17^2 = 289$
12) Conversions
   a. 8 oz = ½ pound
   b. 3x1.1 = 3.30
13) GCD
   a. 3x16=48
   b. 3x19=57
      i. GCD=3
14) Use Remainders
   a. 58/4 remainder 2
   b. 79/4 remainder 3
   c. 66/4 remainder 2
   d. 2+3+2 = 7; 7/4 remainder 3
15) 4 pecks = 1 bushel
   a. 2½ x 4 = 10
16) Order the Data
   a. 1,1,2,2,3,3,4,5
   b. Average of 2 & 3 is 2.5
17) Memorize primes to 100
   a. 97
18) Memorize cubes to 20
   a. $11^3=1331$
19) 2010÷5 = 402
20) Estimation
   a. $\sqrt{1243} \approx 35$
   b. Round 3421 to 3400
   c. 35x3500=122500

(11) 289

(12) $3.30

(13) 3

(14) 3

(15) 10

(16) 2.5, $\frac{5}{2}$, $2\frac{1}{2}$

(17) 97

(18) 1331

(19) 402

(20) 114581 – 126642

Sponge Activity #4 for Mathematical Properties for UIL Number Sense

Lesson Goal: Students will learn to use the commutative, associative, and distributive properties in different ways to solve math problems using Number Sense Tests.

Time: No More than 15 Minutes

Course: Algebra I or Algebra II

TEKS Addressed:

Algebra I(4)(B) (3)(A)(B)Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. The student is expected to: use symbols to represent unknowns and variables; and look for patterns and represent generalizations algebraically. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to use the commutative, associative, and distributive properties to simplify algebraic expressions.
Algebra II (2)(A) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to: use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations.

Materials Needed:

1. Pencil.
2. Practice problems (attached)
3. Answer Key (attached)

Procedures:

This Activity (Including grading time) should take no longer than 15 minutes either at the beginning or end of the class period. If this work is to be graded, give extra points for speed.

1. Give the Problem Worksheet to each Student.
2. Time the Students taking the Worksheet. (No more than 10 min.)
3. Grade the Worksheet pointing out the hints for each problem.

Lesson #4 Work each of these problems as quickly as possible.

Estimate #10 to plus or minus 10%.

(1) $2210 - 1030 =$ _____

(2) $\frac{7}{10} \times \frac{5}{14} =$ _____

(3) $326 \times 11 =$ _____

(4) $\frac{5}{24} \div \frac{3}{4} =$ _____

(5) $36\ \% =$ _____ (proper fraction)

(6) $(2 + 3) - 5 \div 6 \times 4 =$ _____

(7) $17^2 =$ _____

(8) $65 \times 56 =$ _____

(9) $9^3 =$ _____

(10) $3221 + 4021 - 5112 =$ _____

Answers to Lesson #4

1) Subtract with borrowing
   a. 2210 - 1030 = 1180
2) $\frac{7}{10} x \frac{5}{14} = \frac{1}{2} x \frac{1}{2} = \frac{1}{4}$
3) Multiplying by 11
   a. Put a zero in front and in back of the number
   b. (03260)
   c. Add pairs of digits starting on the right.
   d. 0+6, 6+2, 2+3, 3+0
4) Leave, Change, Flip
   a. $\frac{5}{24} x \frac{4}{3} = \frac{5}{6} x \frac{1}{3} = \frac{5}{18}$
   b. Cancel the 5's
5) $36\% = \frac{36}{100} = \frac{9}{25}$
6) Order of Operations
   a. (2 + 3) - 5 ÷ 6 x 4
   b. 5 - 5 ÷ 6 x 4
   c. $5 - \frac{10}{3}$
   d. $\frac{15}{3} - \frac{10}{3}$
   e. $\frac{5}{3}$
7) Memorize Squares to 35
   a. $17^2 = 289$
8) Use backwards FOIL (Right to Left)
   a. 5 x 6 = 30
      i. (Write 0 Carry 3)
   b. 6 x 6 + 5 x 5 + 3 = 36 + 25 + 3 = 64
      i. (Write 4 Carry 6)
   c. 6 x 5 + 6 = 36
      i. (Write 36)
9) Memorize Cubes to 20
   a. $9^3 = 729$
10) Estimation
   a. Round to the nearest 100
   b. 3200 + 4000 - 5100 = 2100

(1) 1180

(2) .25, $\frac{1}{4}$

(3) 3586

(4) $\frac{5}{18}$

(5) $\frac{9}{25}$

(6) $\frac{5}{3}$, $1\frac{2}{3}$

(7) 289

(8) 3640

(9) 729

(10) 2024 — 2236

Sponge Activity #5 for Mathematical Properties for UIL Number Sense

Lesson Goal: Students will learn to use the commutative, associative, and distributive properties in different ways to solve math problems using Number Sense Tests.

Time: No More than 15 Minutes

Course: Algebra I and Algebra II

TEKS Addressed:

Algebra I(3)(A)(B)Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. The student is expected to: use symbols to represent unknowns and variables; and look for patterns and represent generalizations algebraically.
Algebra II (2)(A) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to: use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations.

Materials Needed:

1. Pencil.
2. Practice problems (attached)
3. Answer Key (attached)

Procedures:

This Activity (Including grading time) should take no longer than 15 minutes either at the beginning or end of the class period. If this work is to be graded, give extra points for speed.

1. Give the Problem Worksheet to each Student.
2. Time the Students taking the Worksheet. (No more than 10 min.)
3. Grade the Worksheet pointing out the hints for each problem.

Lesson #5 Work each of these problems as quickly as possible.

Estimate #10 to plus or minus 10%.

(1) $2010 + 201 + 20 =$ _____

(2) $S20.10 \div 5 = S$_____

(3) $112 - 358 =$ _____

(4) $\frac{8}{15} \times \frac{9}{10} =$ _____

(5) $1\frac{3}{8} \div .0625 =$ _____

(6) 2134711 ÷ 9 has a remainder of _____

(7) $4 \div (5 + 6 - 7) \times 8 =$ _____

(8) $44 \div 15 + 76 \div 15 =$ _____

(9) $\frac{7}{16} =$ _____ % (decimal)

(10) $7777 - 888 + 99 =$ _____

Answers to Lesson #5

1) Add 2010 + 201 +20 = 2231
2) Divide by 5 is the same as multiply by 2 and divide by 10
   a. 20.1 x $\frac{2}{10}$ = 4.02
3) Switch numbers Write Negative, Subtract
   a. -358 + 112
4) $\frac{8}{15} x \frac{9}{10} = \frac{4}{5} x \frac{3}{5} = \frac{12}{25}$
5) Memorize fractions to percents to 1/16
   a. $1\frac{3}{8} \div \frac{1}{16}$
   b. $\frac{11}{8} x \frac{16}{1} = \frac{11}{1} x \frac{2}{1} = 22$
6) Divide by 9; add digits
   a. 2+1+3+4+7+1+1 = 19
   b. 1 + 9 = 10
   c. 1 + 0 = 1
7) Order of Operations
   a. 4 ÷ (5 + 6 - 7) x 8
   b. 4 ÷ (4) x 8
   c. 1 x 8 = 8
8) Change to Fractions
   a. $\frac{44}{15} + \frac{76}{15} = \frac{120}{15} = 8$
9) Memorize fractions to percents to 1/16
   i. .0625 (7) = .43.75%
10) Estimation
   a. Round to the nearest 100
   b. 7800 - 900 + 100 = 7000

(1) 2231

(2) S 4.02

(3) — 246

(4) .48, $\frac{12}{25}$

(5) 22

(6) 1

(7) 8

(8) 8

(9) 43.75

(10) 6639 — 7337

Sponge Activity #6 for Mathematical Properties for UIL Number Sense

Lesson Goal: Students will learn to use the commutative, associative, and distributive properties in different ways to solve math problems using Number Sense Tests.

Time: No More than 15 Minutes

Course: Algebra I or Algebra II

TEKS Addressed:

Algebra I (3)(A)(B)Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. The student is expected to: use symbols to represent unknowns and variables; and look for patterns and represent generalizations algebraically.
Algebra II (2)(A) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to: use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations.

Materials Needed:

1. Pencil.
2. Practice problems (attached)
3. Answer Key (attached)

Procedures:

This Activity (Including grading time) should take no longer than 15 minutes either at the beginning or end of the class period. If this work is to be graded, give extra points for speed.

1. Give the Problem Worksheet to each Student.
2. Time the Students taking the Worksheet. (No more than 10 min.)
3. Grade the Worksheet pointing out the hints for each problem.

Lesson #6 Work each of these problems as quickly as possible.

Estimate #10 to plus or minus 10%.

(1) $2010 - 424 + 508 =$ _____

(2) $\frac{8}{25} \times \frac{15}{16} =$ _____

(3) $201.00 \div 2.5 = \$$ _____

(4) $2\frac{1}{3} + 3\frac{1}{5} =$ _____ (mixed number)

(5) $48\% =$ _____ (proper fraction)

(6) $2010 \div 9$ has a remainder of _____

(7) $1 - 1 \div 2 + 3 \times 5 =$ _____

(8) $31^2 =$ _____

(9) $72 \times 27 =$ _____

(10) $11235 + 2134 - 162 =$ _____

Answers to Lesson #6

1) Add 2010 - 424 +508
   a. 508 - 424 = 84
   b. 2010 + 84 = 2094
2) $\frac{8}{25} x \frac{15}{16} = \frac{1}{5} x \frac{3}{2} = \frac{3}{10}$
3) Dividing by 2.5 is the same as multiplying by $\frac{4}{10}$
   a. 201 x $\frac{4}{10} = \frac{804}{10} = 80.40$
4) $2\frac{1}{3} + 3\frac{1}{5} = 2\frac{5}{15} + 3\frac{3}{15} = 5\frac{8}{15}$
5) 48% = $\frac{48}{100} = \frac{12}{25}$
6) Divide by 9; add digits
   a. 2+0+1+0 = 3
7) 1 - 1 ÷ 2 + 3 x 5
   a. 1 - $\frac{1}{2}$ + 3 x 5
   b. $\frac{1}{2}$ + 3 x 5
   c. $\frac{1}{2}$ + 15
   d. $15\frac{1}{2}$
8) Memorize squares to 35
   a. $31^2 = 961$
9) Use backwards FOIL (Right to Left)
   a. 7 x 2 = 14
      i. (Write 4 Carry 1)
   b. 7 x 7 + 2 x 2 + 1 = 49 + 4 + 1 = 54
      i. (Write 4 Carry 5)
   c. 2 x 7 + 5 = 19
      i. (Write 19)
10) Estimation
   a. Round to the nearest 1000
   b. 11000 +2000 = 13000

(1) 2094

(2) .3, $\frac{3}{10}$

(3) $ 80.40

(4) $5\frac{8}{15}$

(5) $\frac{12}{25}$

(6) 3

(7) 15.5, $\frac{31}{2}$, $15\frac{1}{2}$

(8) 961

(9) 1944

(10) 12547 – 13867

Sponge Activity #7 for Mathematical Properties for UIL Number Sense

Lesson Goal: Students will learn to use the commutative, associative, and distributive properties in different ways to solve math problems using Number Sense Tests.

Time: No More than 15 Minutes

Course: Algebra I

TEKS Addressed:

(4)(A)(B) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to find specific function values, simplify polynomial expressions, transform and solve equations, and factor as necessary in problem situations; use the commutative, associative, and distributive properties to simplify algebraic expressions.

Materials Needed:

1. Pencil.
2. Practice problems (attached)
3. Answer Key (attached)

Procedures:

This Activity (Including grading time) should take no longer than 15 minutes either at the beginning or end of the class period. If this work is to be graded, give extra points for speed.

1. Give the Problem Worksheet to each Student.
2. Time the Students taking the Worksheet. (No more than 10 min.)
3. Grade the Worksheet pointing out the hints for each problem.

Lesson #7 Work each of these problems as quickly as possible.

Estimate #10 to plus or minus 10%.

(1) $38 + 459 + 6712 =$ _____

(2) $\frac{24}{35} \div \frac{4}{7} =$ _____

(3) $245 \times 16 =$ _____

(4) $7.65 - 123.4 =$ _____ (decimal)

(5) 25% of $(\frac{3}{4} \div 0.125) =$ _____

(6) $72\% =$ _____ (proper fraction)

(7) $10 - 8 \times 6 \div 4 + 2 =$ _____

(8) $35 \div 1.5 + 64 \div 1.5 =$ _____

(9) $3\frac{1}{5} - 5\frac{1}{6} =$ _____ (mixed number)

(10) $1307 - 259 - 84 =$ _____

Answers to Lesson #7

1) Add 38 + 459 + 6712 = 7209
2) Leave, Change, Flip
   a. $\frac{24}{35} x \frac{7}{4} = \frac{6}{5}$
3) Teen's Rule 245 x 16
   a. 6x5 = 30
      i. Write 0 Carry 3
   b. 6x4+5+3 = 32
      i. Write 2 Carry 3
   c. 6x2+4+3= 19
      i. Write 9 Carry 1
   d. 6x0+2+1= 3
4) Switch and write negative sign
   a. -123.4 + 7.65 = -115.75
5) $\frac{1}{4} x \frac{3}{4} x \frac{8}{1} = \frac{3}{2}$
6) 72% = $\frac{72}{100} = \frac{18}{25}$
7) Order of Operations
   a. 10 - 8 x 6 ÷ 4 + 2
   b. 10 - 12 + 2 = 0
8) $\frac{35}{1.5} + \frac{64}{1.5} = \frac{70}{3} + \frac{128}{3} = \frac{198}{3} = 66$
9) $-5\frac{1}{6} + 3\frac{1}{5} = -4\frac{35}{30} + 3\frac{6}{30} = -1\frac{29}{30}$
10) Estimation
   a. Round small numbers to the nearest 10
   b. -260 = 80 = 340
   c. Round to nearest 100
   d. 1300 - 300 = 1000

(1) 7209

(2) 1.2, $\frac{6}{5}$, $1\frac{1}{5}$

(3) 3920

(4) — 115.75

(5) 1.5, $\frac{3}{2}$, $1\frac{1}{2}$

(6) $\frac{18}{25}$

(7) 0

(8) 66

(9) $-1\frac{29}{30}$

(10) 916 — 1012

Sponge Activity #8 for Mathematical Properties for UIL Number Sense

Lesson Goal: Students will learn to use the commutative, associative, and distributive properties in different ways to solve math problems using Number Sense Tests.

Time: No More than 15 Minutes

Course: Algebra II

TEKS Addressed:

Algebra II (2)(A) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to: use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations.

Materials Needed:

1. Pencil.
2. Practice problems (attached)
3. Answer Key (attached)

Procedures:

This Activity (Including grading time) should take no longer than 15 minutes either at the beginning or end of the class period. If this work is to be graded, give extra points for speed.

1. Give the Problem Worksheet to each Student.
2. Time the Students taking the Worksheet. (No more than 10 min.)
3. Grade the Worksheet pointing out the hints for each problem.

Lesson #8 Work each of these problems as quickly as possible.

Estimate #20 to plus or minus 10%.

(11) $12^2 =$ _____

(12) $12^3 =$ _____

(13) 24 is what % of 60? _____%

(14) $32 \times 23 =$ _____

(15) $1 + 3 + 5 + \ldots + 23 =$ _____

(16) Which is larger, $\frac{11}{13}$ or $\frac{13}{16}$? _____

(17) $2010 \div 9$ has a remainder of _____

(18) MCDLXIV = _____ (Arabic Number)

(19) $\frac{1}{4}$ ton is equivalent to _____ ounces

(20) $235 \times 146 =$ _____

Answers to Lesson #8

11) Memorize squares to 35
    a. $12^2 = 144$
12) Memorize cubes to 20
    a. $12^3 = 1728$
13) $\frac{24}{60} = \frac{4}{10} = 40\%$
14) Use backwards FOIL 32 x 23 (Right to Left)
    a. 2 x 3 = 6
        i. Write 6
    b. 3 x 3 + 2 x 2 = 13
        i. (Write 3 Carry 1)
    c. 3 x 2 + 1 = 7
        i. (Write 7)
15) Sum of Odd natural numbers
    a. Add 1 to the last number
        i. 23 + 1 = 24
    b. Divide by 2
        i. 24/2 = 12
    c. Square
        i. $12^2 = 144$
16) Cross Multiply
    a. 16x11=176
    b. 13x13=169
    c. 176 is bigger so $\frac{11}{13}$ is bigger
17) Divide by 9; add digits
    a. 2+0+1+0 = 3
18) MCDLXIV
    a. 1000+500-100+50+10+5-1=1464
19) $\frac{1}{4} x 2000 = 500 lbs$
    a. 500x16 = 8000
20) Estimation
    a. Round numbers to the nearest 10
    b. 240x150
    c. Half of 240 is 120
    d. 240+120=360
    e. 360x100=36000

(11) 144

(12) 1728

(13) 40

(14) 736

(15) 144

(16) $\frac{11}{13}$

(17) 3

(18) 1464

(19) 8000

(20) 32595 – 36025

Sponge Activity #9 for Mathematical Properties for UIL Number Sense

Lesson Goal: Students will learn to use the commutative, associative, and distributive properties in different ways to solve math problems using Number Sense Tests.

Time: No More than 15 Minutes

Course: Algebra I & Algebra II

TEKS Addressed:

Algebra I (3)(A)(B)Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. The student is expected to: use symbols to represent unknowns and variables; and look for patterns and represent generalizations algebraically.
Algebra II (2)(A) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to: use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations.

Materials Needed:

1. Pencil.
2. Practice problems (attached)
3. Answer Key (attached)

Procedures:

This Activity (Including grading time) should take no longer than 15 minutes either at the beginning or end of the class period. If this work is to be graded, give extra points for speed.

1. Give the Problem Worksheet to each Student.
2. Time the Students taking the Worksheet. (No more than 10 min.)
3. Grade the Worksheet pointing out the hints for each problem.

Lesson #9 Work each of these problems as quickly as possible.

Estimate #10 to plus or minus 10%.

(1) $3141 - 2718 + 1618 =$ _____

(2) $\frac{3}{5} \div \frac{21}{25} =$ _____

(3) $\$15.15 \times 4 = \$$ _____

(4) $\frac{22}{25} =$ _____ %

(5) $1\frac{1}{6} \div .08333... =$ _____

(6) $3.4 + 2\frac{3}{10} - 1 =$ _____ (decimal)

(7) $77 \div 25 + 123 \div 25 =$ _____

(8) $54 \times 45 =$ _____

(9) $8 \div 4 - 2 + 4 \times 8 =$ _____

(10) $2468 + 3579 + 1001 =$ _____

Answers to Lesson #9

1) Collect the positive integers
   a. 3141 - 2718 + 1618
   b. 4759 - 2718 = 2041
2) Leave, Change, Flip
   a. $\frac{3}{5} x \frac{25}{21} = \frac{1}{1} x \frac{5}{7} = \frac{5}{7}$
3) Multiply 4 x 15 = 60
   a. Write answer to the nearest penny.
4) $\frac{22}{25} x \frac{4}{4} = \frac{88}{100} = 88\%$
5) Change Decimal to fraction
   a. $.08333\ldots = \frac{1}{12}$
   b. $\frac{7}{6} x \frac{12}{1} = 7x2 = 14$
6) Change Mixed Number to Decimal
   a. 3.4 + 2.3 - 1 = 4.7
7) Change to fractions
   a. $\frac{77}{25} + \frac{123}{25} = \frac{200}{25} = 8$
8) Use backwards FOIL (Right to Left)
   a. 4 x 5 = 20
      i. (Write 0 Carry 2)
   b. 5 x 5 + 4 x 4 + 1 = 25 + 16 + 2 = 43
      i. (Write 3 Carry 4)
   c. 5 x 4 + 4 = 24
      i. (Write 24)
9) Order of Operations
   a. 8 ÷ 4 - 2 + 4 x 8
   b. 2 - 2 + 32 = 32
10) Estimation
   a. Round to the nearest 100
   b. 2500 + 3600 + 1000 = 7100

(1) 2041

(2) $\frac{5}{7}$

(3) $60.60

(4) 88

(5) 14

(6) 4.7

(7) 8

(8) 2430

(9) 32

(10) 6696 — 7400

Sponge Activity #10 for Mathematical Properties for UIL Number Sense

Lesson Goal: Students will learn to use the commutative, associative, and distributive properties in different ways to solve math problems using Number Sense Tests.

Time: No More than 15 Minutes

Course: Algebra I, Geometry, Algebra II

TEKS Addressed:

Geometry (1) (A) Geometric structure. The student understands the structure of, and relationships within, an axiomatic system. The student is expected to develop an awareness of the structure of a mathematical system, connecting definitions, postulates, logical reasoning, and theorems.

Algebra I(3)(A)(B)(4)(B) Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations. The student is expected to: use symbols to represent unknowns and variables; and look for patterns and represent generalizations algebraically. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to use the commutative, associative, and distributive properties to simplify algebraic expressions.

Algebra II (2) (A) (B) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations. The student is expected to use tools including factoring and properties of exponents to simplify expressions and to transform and solve equations; and complex numbers to describe the solutions of quadratic equations.

Materials Needed:

1. Pencil.
2. Practice problems (attached)
3. Answer Key (attached)

Procedures:

This Activity (Including grading time) should take no longer than 15 minutes either at the beginning or end of the class period. If this work is to be graded, give extra points for speed.

1. Give the Problem Worksheet to each Student.
2. Time the Students taking the Worksheet. (No more than 10 min.)
3. Grade the Worksheet pointing out the hints for each problem.

Lesson #10 Work each of these problems as quickly as possible. Estimate #20 to plus or minus 10%.

(11) $14^2 =$ _____

(12) $14^3 =$ _____

(13) The LCM of 48 and 57 is _____

(14) $(34 \times 56 - 78) \div 9$ has a remainder of _____

(15) 1 acre is equivalent to _____ square feet

(16) The mode of 1, 3, 2, 3, 4, 2, 1, & 3 is _____

(17) DLV × CXI = _____ (Arabic Numeral)

(18) How many elements are in $\left\{x \mid 30 < x < 40, \text{ where } x \in \{\text{Primes}\}\right\}$? ____

(19) If a 6-pack of 12 oz. cans of soda costs $4.50 then one 12 oz. can will cost $ _____

(20) $\sqrt{678} \times \sqrt{1154} =$ _____

Answers to Lesson #10

11) Memorize squares to 35
    a. $14^2 = 196$
12) Memorize cubes to 20
    a. $14^3=2744$
13) For LCM first find the GCD
    a. 3x16=48
    b. 3x19=57
        i. GCD=3
    c. 48(57)÷3 = 912
14) Use Remainders
    a. 34/9 remainder 7
    b. 56/9 remainder 2
    c. 78/9 remainder 6
    d. 7x2-6 = 8; remainder 8
15) 1 acre = 43,560 sq ft
16) Mode = Most = 3
17) 555 x 111 = 61605
18) Memorize primes to 100
    a. 31,37
    b. Primes = 2
19) 4.5/6 = .75
20) Estimation
    a. Memorize squares to 35
    b. 26x34
    c. (30-4)(30+4)
    d. 900 - 16 = 884

(11) 196

(12) 2744

(13) 912

(14) 8

(15) 43560

(16) 3

(17) 61605

(18) 2

(19) $ .75

(20) 841 — 928