

# Prealgebra 1 Intended Syllabus

## **Session 1**

### **Chapter 1 Number Theory**

#### Week ①

##### 1.1 The Addition, Subtraction, Multiplication, Division, and Number Laws – Part 1

- 1.1.1 Order of Operations
- 1.1.2 Expressions with Brackets
- 1.1.3 The Commutative Law of Addition and Multiplication

#### Week ②

##### 1.2 The Exponential Notation, Negative Number, and Number Laws – Part 2

- 1.2.1 Exponential Notation
- 1.2.2 Negative Numbers
- 1.2.3 The Association Law of Addition and Multiplication
- 1.2.4 The Distribution Law of Multiplication (with respect to Addition)

#### Week ③

##### 1.3 Divisibility Rules and Prime Numbers

- 1.3.1 Divisibility Tests
- 1.3.2 Factors and Multiples
- 1.3.3 Prime Numbers

#### Week ④

##### 1.4 Prime Number and Prime Factorization

- 1.4.1 More on Prime Numbers
- 1.4.2 High Exponents
- 1.4.3 Prime Factorization with Repeated Division and Factor Tree

#### Week ⑤

##### 1.5 Prime Factorization and Greatest Common Factor (gcf)

#### **(Week 5, last 60 minutes)**

#### **Quiz #1**

#### Week ⑥

##### 1.6 Least Common Multiple (lcm)

### **Chapter 2 Fractions**

#### Week ⑦

##### 2.1 Fractions – Part 1

- 2.1.1 Simplest Form, Comparing Fractions, Improper Fractions, and Mixed Numbers
- 2.1.2 Multiplication and Division of Fractions

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## Week ⑧

### 2.2 Fractions – Part 2

- 2.2.1 Additional and Subtraction of Fractions
- 2.2.2 Complex Fractions

## Week ⑨

### 2.3 Number Patterns

- 2.3.1 Square Numbers and Cubic Numbers
- 2.3.2 Number Patterns

**(Week 9, last 60 minutes)**

### Quiz #2

## Chapter 3 Decimals

### Week ⑩

#### 3.1 Decimals and Approximation

- 3.1.1 Arithmetic with Decimals
- 3.1.2 Rounding Off

### Week ⑪

#### 3.2 Fractions and Decimals

- 3.2.1 Convert Fractions to Decimals
- 3.2.2 Convert Decimals to Fractions
- 3.2.3 Repeating Decimals

### Week ⑫

#### 3.3 Powers of 10

- 3.3.1 Negative Exponents
- 3.3.2 Powers of 10

**(Week 12, last 60 minutes)**

### Quiz #3

## Chapter 4 Arithmetic Problems

### Week ⑬

#### 4.1 Unit of Measure

- 4.1.1 Common Units
- 4.1.2 Conversion of Units

#### 4.2 Simple Word Problems

### Week ⑭ Review and Final Exam

### Week ⑮

#### 4.3 Complex Word Problems

- 4.3.1 Multi-Step Word Problems
- 4.3.2 Estimation in Real World Situations

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## **Session 2**

### **Chapter 5 Real Numbers**

#### Week ①

##### 5.1 Mixed Review on Negative Numbers and Order of Operations

- 5.1.1 Additional and Subtraction with Negative Numbers
- 5.1.2 Multiplication and Division with Negative Numbers
- 5.1.3 Order of Operations

#### Week ②

##### 5.2 Real Numbers

- 5.2.1 Squares, Square Roots, Cubes, and Cube Roots
- 5.2.2 Rational and Irrational Numbers
- 5.2.3 Operations with Real Numbers

### **Chapter 6 Introduction to Algebraic Expressions**

#### Week ③

##### 6.1 Algebraic Expressions

- 6.1.1 Algebra Expressions
- 6.1.2 Evaluating Algebra Expressions
- 6.1.3 Equivalent Expressions

#### Week ④

##### 6.2 Operations with Algebraic Expressions

- 6.2.1 Algebraic Terminology
- 6.2.2 Applying Distribution Law on Algebraic Expressions
- 6.2.3 Collecting Like Terms

#### Week ⑤

### **Mixed Review and Quiz #1**

### **Chapter 7 Solving Equations**

#### Week ⑥

##### 7.1 Equations

- 7.1.1 Equivalent Equations
- 7.1.2 Equations with Fractional and Decimal Coefficients

#### Week ⑦

##### 7.2 Algebraic Problems

- 7.2.1 Evaluation of Formula
- 7.2.2 Solving Word Problems Using Equation

# Prealgebra 1 Intended Syllabus

## Chapter 8 Ratio, Proportion and Percentage

Week ⑧

8.1 Ratio

8.1.1 Rate and Speed

8.1.2 Ratio and Its Applications

Week ⑨

8.2 Proportion

8.2.1 Proportion

8.2.2 Applications of Proportions

Week ⑩

**Mixed Review and Quiz #2**

Week ⑪

8.3 Percentage

8.3.1 Percentage

8.3.2 Applications of Percentage

## Chapter 9 Problem Solving Strategies

Week ⑫

9.1 Mixed Review and Problem Solving Strategies

## Chapter 10 Exponents and Square Roots

Week ⑬

10.1 Higher Exponents

10.2 Squares and Cubes

**Week ⑭ Review and Final Exam**

Week ⑮

10.3 Square Roots

10.3.1 From Squares to Square Roots

10.3.2 Arithmetic with Square Roots

**Session 1 Week ⑥****Greatest Common Factor (gcf) and Least Common Multiple (lcm)**

1. Find the prime factors for the following numbers:

(a) 111 (b) 1111

2. (a) Find the sum of all positive integer factors of 12.

(b) Find the first five multiples of 12.

3. Find the lcm of each set of numbers:

(a) 4, 6 (b) 3, 13

4. Find the lcm of each set of numbers:

(a) 126, 195 (b) 4, 8, 16, 20

5. Find the gcf and lcm of  $36ab$ ,  $450bc$ ,  $108ac$ .

6. Investigate the following:

(a) Find  $\text{lcm}(2 \cdot 5, 2 \cdot 3)$ .

(b) Find  $2 \cdot \text{lcm}(5, 3)$ .

(c) Is  $\text{lcm}(2 \cdot 5, 2 \cdot 3)$  equal to  $2 \cdot \text{lcm}(5, 3)$  ?

(d) Find  $\text{lcm}(500, 300)$ .

From (a) and (b), we note that if  $a, b, n$  are positive integers, we have

$$\text{lcm}(n \cdot a, n \cdot b) = n \cdot \text{lcm}(a, b)$$

7. The lcm of 6 and a certain number is 24. Find the number. If there is more than one answer, give the smallest number.

8. The gcf of two numbers is 1, and the lcm of these two numbers is 91. What are the numbers?

9. Find the smallest number which when divided by 20, or 42, or 63 leaves a remainder of 9.

10. Find the largest 3-digit number which is divisible by 5, 6, and 9.

11. Simplify  $\left|(-2)^5 + 3^2 - (-5)^2\right| - (5 - 9)^2$ .

12. Suppose that  $a \ominus b = 2a - b$ . For example  $5 \ominus 2 = 2 \times 5 - 2 = 8$ . What is the value of  $5 \ominus 13$ ? What is the value of  $5 \ominus (5 \ominus 13)$ ?

13. If  $9 + \square = 25 - \square$ , find the number that belongs in the box.
14. Math E. Matics, the most English famous detective, was investigating a crime in London. Slick Gordon told that at midnight on April 5 it was raining, but 48 hours earlier the sun was shining. How did Math E. Matics know that Slick was lying?
15. Liz asks her math teacher the room number for math club meeting. The teacher says, "Sure, it's the smallest multiple of 11 that, when divided by 2, 3, 4, 5, 6, has a remainder of 1". What is the room number?

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**Session 1 Week ⑥ Key Points #S1-06**

- (a) **Multiples** of a number: multiply the number by an integer.
- (b) **Factors** of a number: numbers can be multiplied to get the number.
- (c) **Greatest Common Factor (gcf)** or **Greatest Common Divisor (gcd)** of two or more numbers: the greatest number that is the common factor of the numbers.

**Steps to find gcf:**

Step 1: Find the prime factorization of each number;

Step 2: Identify the common prime factors that appear in the each of the prime factorizations;

Step 3: Multiply all common prime factors found in Step 2.

- (d) **Least Common Multiple (lcm)** of two or more numbers: the smallest positive number which is a multiple of the numbers.

**Steps to find lcm:**

Step 1: Find the prime factorization of each number;

Step 2: For each prime factor listed, find the most repeated occurrence of this number in all Prime factorizations (i.e., the highest powers of each prime factor)

Step 3: Multiple all the results found in Step 2.

- (e) If  $a, b, n$  are natural numbers:

$$gcf(n \cdot a, n \cdot b) = n \cdot gcf(a, b)$$

$$lcm(n \cdot a, n \cdot b) = n \cdot lcm(a, b)$$

**Session 1 Week ⑥ Homework #S1-06**

1. If  $99099 = 3^w \cdot 7^x \cdot 11^y \cdot 13^z$ , find the value of  $w + x + y + z - w \cdot x \cdot y \cdot z$ .
2. Find the gcd and lcm of 700, 35, and 130.
3. Find of gcd and lcm of  $4p^3q$  and  $72p^2r^2$ .
4. Find the largest 3-digit number which is divisible by 5 and 9.
5. Pick two numbers from the following such that their product is divisible by 6.  
31, 35, 45, 71, 82
6. Linda's mother is 6 times her age. Their combined age is 49 years. How old is Linda's mother?
7. Simplify  $(-3)^3(-1)^{79}$ .
8. Compute  $-2^4 + (-2)^4$ .
9.  $10 + 11 + 12 + 13 + 14 = 1 + 2 + 3 + 4 + \underline{\hspace{2cm}}$ .
10.  $1357 + \underline{\hspace{2cm}} = 9999$ .
11. Amy's brother is now 10 years old. Two years ago she was as old as he is now. How old will Amy be in 3 years?
12. What is the smallest prime factor for  $3^7 + 7^3$ ?
13. Mr. Rodriguez bought three items at the store. The first item cost \$49. The second item cost \$9 more than the first item. The third item cost \$15 less than the second item. How much did Mr. Rodriguez pay for all three items?
14. Every bag of Halloween candy at Walmart has the same number of candies. Andrew and Emily each bought some bags of candies. Andrew gets total of 70 candies, and Emily has total of 42 candies. What is the smallest possible number of bags Andrew could have bought?
15. The number 16128 is a multiple of 6, 7, and 8. What is the smallest multiple of 6, 7, and 8 that is greater than 16128?



**Session 1 Week<sup>⑪</sup>**  
**Fractions and Decimals**

1. Express the following as decimals:

(a)  $\frac{3}{4}$

(b)  $\frac{2}{10} + \frac{4}{100} + \frac{5}{1000}$

2. Convert the following decimals into fractions, simplify your answers:

(a) 0.375

(b) -3.2

3. Express each of following fractions as a repeating decimal:

(a)  $\frac{1}{3}$

(b)  $\frac{1}{7}$

4. Arrange the following numbers from smallest to largest:

0.39, 0.411,  $\frac{5}{11}$ ,  $\frac{3}{8}$  .

5. Simplify the following. Give your answer either in fractions or decimals:

(a)  $3.2 - 5\frac{1}{4}$

(b)  $\frac{2}{3} - 0.075 \div 0.05$

6. Express the following as a decimal:

(a)  $2018\frac{3059}{10000}$

(b)  $2018\frac{17}{1000}$

7. Evaluate  $\frac{5}{6} \div 0.4$  .

8. Calculate  $\frac{1}{3} \times 0.57 - \frac{5}{8} \times 0.104$  .

9. Arrange the following numbers from the smallest to the largest:

1.2345,  $1.234\bar{5}$ ,  $1.23\overline{45}$ ,  $1.2\overline{345}$ ,  $1.\overline{2345}$

10. Evaluate  $\frac{0.312 \times 0.02}{0.8 \times 0.05}$ , giving your answers in decimals correct to the tenth place.

11. Calculate the following without paper and pencil:

(a)  $4.5 \times \frac{1}{4} + 2.5 \times \frac{1}{4} + 3 \times \frac{1}{4}$

(b)  $3.85 \times 47.3 + 52.7 \times 3.85$

(c)  $27 \times 31 + 28 \times 31 + 69 \times 55$

12. What is the difference between 2.5 and its reciprocal? Express your answer as a fraction.
13. If the first day of the month is a Monday, then the 17<sup>th</sup> day of the month is a \_\_\_\_\_.  
(There are 7 days in a week.)
14. Rick has 55 cents in his pocket. He only has nickels and dimes. There are only 7 coins. How many nickels does he have?
15. Janet has 5 coins in her pocket, 3 dimes and 2 pennies. Danielle has 8 coins in her pocket and has the same amount of money as Janet. What 8 coins Danielle have, if she has no quarters?

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**Session 1 Week 11 Key Points #S1-11**

- (a) **Converting a decimal number to a fraction:** write the decimal number into an equivalent fraction by making the numerator the number itself and the denominator 1. Then multiply both the numerator and the denominator with a number (usually 10, 100, or 1000, ... depending on how many decimal digits the number has) which makes the numerator an integer. Simplify the result.
- (b) **Convert a fraction to a decimal number:** divide the numerator by the denominator.
- (c) **Repeating (Recurring) Decimal:** a decimal number with digits that repeat forever. For example:

$$\frac{1}{9} = 0.111 \dots = 0.\dot{1} = 0.\overline{1}$$

$$\frac{1}{6} = 0.1666 \dots = 0.1\dot{6} = 0.1\overline{6}$$

$$\frac{9}{11} = 0.8181 \dots = 0.8\dot{1} = 0.8\overline{1}$$

**Session 1 Week⑪ Homework #S1-11**

1. Simplify:  $-\frac{1}{2} - 0.5$ .
2. Calculate:  $2\frac{2}{5} \times 0.5 \div 0.01$ .
3. Evaluate:  $8.4 \div \left(\frac{5.6}{1.4} - 1.9\right)$ .
4. Find the value of  $\frac{5}{11} \div (-0.2)$ .
5. Compute:  $\frac{6}{0.3} + \frac{0.3}{0.06}$ .
6. By how much does 0.125 exceed its reciprocal? Write your answer as a decimal number.
7. Arrange the fractions and/or decimals in ascending order  $\frac{3}{5}, \frac{3}{7}, 0.3, 0.5$ .
8. Simplify:  $9 - 4 + 2 \div (-12) \cdot 9$ .
9. Compute:  $9 - 3.2(-0.5) + 1.3^2$ .
10. The sum  $0.25 + 0.375 = 0.625$  can be expressed using fractions as:  
(A)  $\frac{1}{4} + \frac{3}{8} = \frac{5}{8}$  (B)  $\frac{1}{4} + \frac{3}{8} = \frac{4}{12}$   
(C)  $\frac{1}{4} + \frac{3}{16} = \frac{5}{16}$  (D)  $\frac{1}{25} + \frac{3}{75} = \frac{6}{25}$
11. Arrange from smallest to largest  $-\frac{2}{3}, -\frac{13}{18}, -0.645, -\frac{5}{6}, -\frac{31}{36}, -0.855$ .
12. Marie has \$1.31 in her pocket. She then returns 12 empty soda cans and gets a nickel for each can. How much money does Marie have now?
13. If  $A \circledast B = \frac{A+B}{2}$ , what is  $(3 \circledast 5) \circledast 8$ ?
14. What number is 4 away from 11 and 6 away from 1?
15. Karen used to receive \$1.50 allowance each week. One week her parents doubled her allowance. The next week they increased the new amount by \$1.50. Then the next week they cut this new amount in half. Karen's allowance is now \_\_\_\_\_.

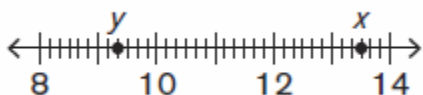
**Session 2 Week ③****Algebraic Expressions**

1. Find the value or write your answer as an expression:
  - (a) John is 3 inches taller than Steve. If Steve is 50 inches tall, find the height of John.
  - (b) John is 3 inches taller than Steve. If Steve is  $x$  inches tall, find the height of John.
  - (c) For the expression in (b), find the variable, coefficient, and constant.
2. Find the value or write your answer as an expression:
  - (a) Allen and Mathew have \$42 together. If Allen has \$29, how much does Mathew have?
  - (b) Allen and Mathew have \$42 together. If Allen has \$ $y$ , how much does Mathew have?
  - (c) For the expression in (b), find the variable, coefficient, and constant.
3. Find the value or write your answer as an expression:
  - (a) Fresh milk costs \$4.5 per gallon. How much will 7 gallons of milk cost?
  - (b) Fresh milk costs \$4.5 per gallon. How much will  $w$  gallons of milk cost?
  - (c) For the expression in (b), find the variable, coefficient, and constant.
4. Find the value or write your answer as an expression:
  - (a) Mr. Bougie is 3 times as tall as his son. If Mr. Bougie is 75 inches tall, find his son's height.
  - (b) Mr. Bougie is 3 times as tall as his son. If Mr. Bougie is  $x$  inches tall, find his son's height.
  - (c) For the expression in (b), find the variable, coefficient, and constant.
5. Write an expression for each of the following:
  - (a) Fresh milk costs \$ $x$  per gallon. How much will 11 gallons of milk cost?
  - (b) Fresh milk costs \$ $x$  per gallon. How much will  $w$  gallons of milk cost?
  - (c) For the expressions in (a) and (b), find the variables, coefficients, and constants.
6. Write an expression for each of the following:
  - (a) The sum of two numbers is 100. If one of the numbers is  $x$ , find the other number.
  - (b) The product of two numbers is 72. If one of the numbers is  $y$ , find the other number.
  - (c) For the expressions in (a) and (b), find the variables, coefficients, and constants.
7. A positive number is half of another number. If the smaller number is  $x$ , write an expression for the larger number in terms of the smaller number.
8. Write down an expression for the cost, in dollars, of 30 pencils at  $x$  cents each and 16 pens at  $y$  cents each. Identify the variable, coefficient, and constant in the expression.

9. Amanda has four boxes of chocolate and seven extra pieces of chocolate. Andy has seven boxes of chocolate and four extra pieces of chocolate. Suppose each box of chocolate has  $y$  pieces of chocolate.
- Write an expression for the total number of pieces of chocolate Amanda has.
  - Write an expression for the total number of pieces of chocolate Andy has.
  - Write an expression for the total number of pieces of chocolate they have together.
  - For the expressions in (a), (b) and (c), find the variables, coefficients, and constants.
10. Write an expression for this statement: seven divided by twice a number.

11. Evaluate  $5 - 3y \div 4$  for  $y = -12$ .

12. On the number line shown, what is the value of  $y - x$ ? Express your answer as a mixed number.



13. Evaluate the following for  $x = 7$  and  $x = -7$ .

(a)  $(-x)^2$                       (b)  $-x^2$

14. Evaluate  $xy - \frac{x}{y}$  if  $x = \frac{5}{21}$  and  $y = -\frac{3}{10}$ .

15. If  $a = 4\frac{1}{3}$ ,  $b = -3\frac{2}{5}$ ,  $c = \frac{13}{15}$ , then evaluate  $\frac{ab}{c} - \left(\frac{1}{4} - \frac{1}{2}\right)^2$ .

**Session 2 Week ③ Key Points #S2-03**

- (a) **Variable:** a letter that represents an unknown number.
- (b) **Constant:** a number, a fixed value.
- (c) **Algebraic Expression:** A number (constant) or variable, or a collection of numbers, variables, and operations (addition, subtraction, multiplication, division, and exponentiation by an exponent that is a rational number).
- (d) **Algebraic Terms:** a product of a number, a variable raised to some power such as  $3n$ ,  $4x$ ,  $x^2y$ .
- (e) **Coefficient:** the number multiplier of a variable. For example, the coefficient for  $3x$  is 3, the coefficient for  $x$  is 1.
- (f) **Evaluate of Algebraic Expressions:** substitute the given values of the variables in the expression and simplify.

$$3x^2 - 2xy + 13$$

3      4      3      4      5

1 – Exponent (power), 2 – coefficient, 3 – term, 4 – operator, 5 – constant,  $x, y$  - variables

**Session 2 Week ③ Homework #S2-03**

1. A number is 2 greater than the number  $k$ . Write an expression for the number.
2. John is 3 inches taller than Steve. If John is  $x$  inches tall, write an expression for height of Steve. Identify the variable, coefficient, and constant in the expression.
3. A number is 5 less than the product of  $p$  and  $q$ . Write an expression for the number. Identify the variable, coefficient, and constant in the expression.
4. A positive number is half of another number. If the larger number is  $x$ , write an expression for the smaller number in terms of the larger number. Identify the variable, coefficient, and constant in the expression.
5. Jason, Peter, and James have 45 marbles altogether. If Jason has  $w$  marbles and Peter has  $x$  marbles, how many marbles does James have? Identify the variable, coefficient, and constant in the expression.
6. A number is greater than twice another number by 11. Write an expression for the larger number in term of the smaller number.
7. If a pipe fills  $\frac{1}{6}$  of a swimming pool with water in two hours, write an expression for that part of pool which is filled in  $y$  hours.
8. If twice a missing number is added to 6, the result is  $x$ . Write an expression for the missing number. Identify the variable, coefficient, and constant in the expression.
9. Evaluate  $a^2 + b^2$  for  $a = 5$  and  $b = -12$ .
10. Evaluate  $\frac{a}{b}$  and  $\frac{-a}{-b}$  for  $a = 143$  and  $b = -11$ .
11. Evaluate  $(-y)^4$  and  $-y^4$  for  $y = 2$  and  $y = -2$ .
12. Evaluate  $2x - \frac{x}{y}$  if  $x = \frac{5}{12}$  and  $y = -1\frac{1}{2}$ .
13. If  $m = -1$ , find the value of  $m^{2018} - m^{2017}$ .
14. If you add two numbers, their sum is 10. If you subtract the smaller number from the larger number, the answer is 2. Find the two numbers.
15. Jack is Jill's brother. Jill has as many sisters as brothers. Jack has twice as many sisters as brothers. How many children are in the family?



**Session 2 Week 12****Mixed Review and Problem Solving Strategies**

1. Find the value of  $18 - 18 \div (-3)^2 - (2 - 7)$ .

2. Simplify  $\frac{\frac{n}{14}}{\frac{2}{-\frac{3}{2}}}$ .

3. Simplify  $\frac{4}{a} - \frac{9}{a}$  where  $a \neq 0$ .

4. Combine like terms:  $4(x - 5y - 3) - 6(3x - y) + 8$ .

5. For what values of  $y$  do  $|y| + 1 = 6$ ?

6. Solve the equation  $9 - 2(x - 3) = 5x - 6$ .

7. Find the solution to the equation  $\frac{3}{2}x - \frac{4}{3}x = -\frac{10}{3} + 2\frac{2}{3}x$ .

8. Solve for  $x$ :

(a)  $\frac{x}{1.2} = \frac{36}{5.4}$

(b)  $\frac{22}{2\frac{3}{4}} = \frac{1\frac{1}{2}}{x}$

9. Arrange the following numbers from smallest to largest:

$\frac{1}{2}\%$ ,  $5\%$ ,  $0.275$ ,  $\frac{13}{100}$ ,  $0.1\%$ ,  $0.05\%$ ,  $\frac{3}{10}$ ,  $\frac{7}{20}$ ,  $10\%$

10. Solve the following:

(a) 130% of \$350 is what number?

(b) 25% of what number is 14.5?

(c) What percent of \$672 is \$160?

11. If it takes 20 minutes to read 15 pages, how many hours will it take to read 105 pages at the same rate? Find two methods to solve it.

12. Mr. James has \$17.50 in change. 20% of this amount is in half dollars.  $\frac{1}{4}$  of the remainder is in quarters and the rest is made up of the same number of dimes and nickels. How many coins does Ms. James have?

13. Clark has three times as many nickels as dimes. If he has \$1.00 worth of nickels and dimes. How many dimes does he have? Find two ways to solve this problem.

14. A coupon allows a couple to have dinner and then have \$10 subtracted from the bill. Before subtracting \$10, however, the restaurant adds a tip of 20%. If the couple is presented with a bill for \$40.40, how much would the dinner (without tip) have cost without coupon?
15. A number is divided into two parts, such that one part is 10 more than the other. If the two parts are in the ratio 5 : 3, find the number and the two parts.

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**Session 2 Week 12 Key Points #S2-12****(a) Steps for Solving a Word Problem:**

- (1) Read the problem carefully.
- (2) Choose a strategy and make a plan.
- (3) Carry out the plan and solve the problem.
- (4) Check your solution is actually answering the question.

**(b) Problem Solving Strategies:**

- (1) Create a diagram/picture;
- (2) Guess and check;
- (3) Make a table or list;
- (4) Logical reasoning;
- (5) Find a pattern;
- (6) Work backwards;
- (7) Use an algebraic equation.

**Session 2 Week 12 Homework #S2-12**

1. Find the value of  $-(-8) - 16 \div 2(-8) - (2^3 - 3^2)$ .

2. Simplify  $\frac{\frac{x}{15}}{\frac{3}{4}}$ .

3. Combine like terms:  $2x + 4y - 5 - (5x - 7y)$ .

4. Solve for  $t$ :  $|t| - 3 = 3$ .

5. Solve the equation  $3 - 3(4x - 1) = 3(x - 7)$ .

6. Find the solution to the equation  $\frac{1}{2}x - x = \frac{67}{12} + x + \frac{5}{3} - 2$ .

7. Solve for  $x$ :

(a)  $\frac{x}{12} = \frac{13}{6}$

(b)  $\frac{7}{2} = \frac{11}{x}$

8. What number is 3.2% of 80,000?

9. \$17.5 is 35% of what number?

10. 220 is what percent of 1320?

11. Ann sold 75% of her tennis balls for 80 cents each. She has 5 tennis balls left. How much money did Ann collect for the tennis balls she sold? Find two ways to solve the problem.

12. Eddie was playing basketball. He made 55% of his first 20 attempts. After he took 5 more shots, he raised his field goal percentage to 56%. What was his field goal percentage for the last 5 shots?