



Republic of the Philippines
Department of Education
National Capital Region
Schools Division Office – Muntinlupa City

SPECIAL PROGRAM FOR TECHNICAL VOCATIONAL EDUCATION (SPTVE)
SHIELDED METAL ARC WELDING 7 / QUARTER 3 WEEK 2

I. Topic: PERFORM CALCULATION AND CONVERSION

- II. Objectives: 1. Perform simple calculations involving whole numbers using the four fundamental operations;
2. Convert English Units of measurement to Metric System and vice versa;
3. appreciate the importance of performing calculation and conversion.

III. Brief Introduction of the Lesson

The four fundamental operation (addition, subtraction, multiplication and division) skills should be developed in Shielded Metal Arc Work (SMAW) doing jobs. Inaccurate operation would mean waste of time, effort, materials and the quality of the finish product. The skill in measuring starts with the ability to add, subtract, multiply and divide.

WHOLE NUMBERS

Are numbers that have no decimal or fractional parts. It can be ODD or EVEN numbers. ODD numbers are those that cannot be divided by two (2). EVEN numbers are numbers that can be divided by 2 with an exact number of times. Examples: Whole Numbers - 1 , 3 , 15 , 20 , 45 , 64 , 75 , 102 , etc.

ADDITION

Addition is the process of combining two or more arithmetical or algebraic quantities in one sum. It is the most common operation in mathematics indicated by a plus (+) sign.

EXAMPLES:

1. $\begin{array}{r} 241 \\ + 356 \\ \hline 597 \end{array}$	2. $\begin{array}{r} 315 \\ + 482 \\ \hline 797 \end{array}$
--	--

SUBTRACTION

Is the process of taking one number away from another number. It is the opposite of addition. The minus (-) sign indicates subtraction. The Minuend is the number from which the subtraction is made. The Subtrahend is the number which is subtracted. The Remainder is the difference between the two numbers.

EXAMPLES:

1. $\begin{array}{r} 578 \\ - 231 \\ \hline 347 \end{array}$	2. $\begin{array}{r} 965 \\ - 732 \\ \hline 233 \end{array}$	3. $\begin{array}{r} 879 \\ - 546 \\ \hline 333 \end{array}$
--	--	--

MULTIPLICATION

Is the process of adding one number as many times as there are units in the other number, for example $2 \times 3 = 6$. It can also produce the same result as adding $3 + 3 = 6$.

$\begin{array}{r} 150 \\ \times 7 \\ \hline 750 \end{array}$	- Multiplicand - Multiplier - Product
--	---





Republic of the Philippines
Department of Education
National Capital Region
Schools Division Office – Muntinlupa City

Multiply the multiplicand by the multiplier to get the product.

DIVISION Is the process of finding how many times one number contains the other number. Divide dividend by divisor to get the quotient

54 - Quotient	54 - Quotient
5 $\sqrt{270}$ - Dividend	x 5 - Divisor
25	270 - Dividend
- 20	
20	
- 0	

Converting English Units of measurement to Metric System

The Metric System is known as the most common measurement system used in most places of the world. There are common prefixes used to represent as multipliers. For example, in a distance of 2,000 meters can also be expressed as 2 Kilometers.

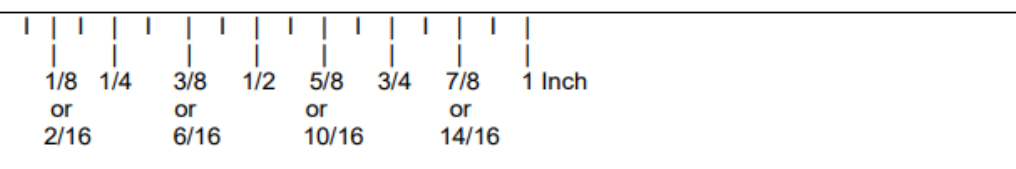
The **English System** on the other hand is also known as the British (US) System likewise commonly used anywhere in the world. This system uses the Inch, Foot and Pound as the basic units of measurement. Decimal inch based on tenths and hundredths to simplify measurements. It is commonly used by Engineers, Architects, Surveyors, Draftsmen etc. For better understanding of the systems one must be familiar with the conversion of the English units of measurement to the metric system and vice versa by applying the appropriate conversion factors and procedures.

Measurement Systems

The basic measurement in the English system is the Yard divided into Feet and Inches abbreviated follows: Yard – Yd. , Feet – Ft. , and Inches as In. The Metric System or the Systems International (SI) use Meter as the basic unit of measure divided into Decimeters, Centimeters, and Millimeters with the following abbreviations when used. Meter _ m Centimeter _ cm Decimeter _ dm Millimeter _ mm. Measuring accurately is skill that should be developed. Inaccurate measurements would mean waste of time, effort, materials and the quality of the finish product. The skill in measuring starts with the ability to read and interpret the systems of measurement. The measuring tool available in the workshop contains English System in one side and Metric System on the other.

A- English System

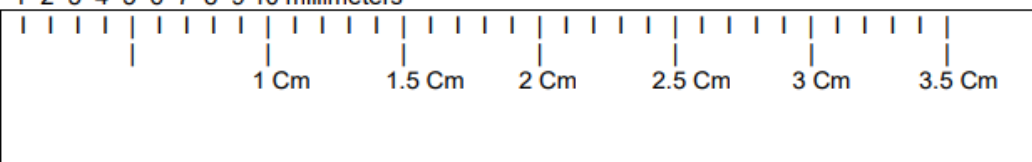
1/16 5/16 9/16 13/16



B- Metric System

The Metric System (Systems International-SI) Centimeters is divided into ten (10) Graduations where the first graduation reads 1 millimeter, the second 2 millimeters, the fifth 5 millimeters or .5 centimeter and so on.

1 2 3 4 5 6 7 8 9 10 millimeters



Cer
Tel
ww



Republic of the Philippines
Department of Education
 National Capital Region
 Schools Division Office – Muntinlupa City

BASE UNITS OF MEASURE

Unit	Metric Symbol	Quantity
Meter	m	Length
Gram	g	Mass
Second	s	Time
Ampere	A	Current

COMMON UNIT PREFIXES

Prefix	Unit	Number
Micro	Millionth	.000001
Milli	Thousandth	.001
Centi	Hundredth	.01
Deci	Tenth	.1
Deka	Ten	10
Hecto	Hundred	100
Kilo	Thousand	1,000

A. Metric to English Equivalents

Metric System or Systems International (SI) _ English System or British (US) System

1 Meter	=	39.37 inches
	=	3.28 Feet
0.30 meter/30centimeters	=	1 foot
1 centimeter	=	0.3937 inch
2.54 centimeters	=	1 inch
1 millimeter	=	0.03 inch
25 millimeters	=	1 inch
1 kilometers	=	1093.6 yards

Metric to English Conversion.

To convert **meters to inches**, multiply the length in meters by 39.37

Convert 2 meters to inches (2 m = _____ in)

$$2 \times 39.37 = \mathbf{78.74 \text{ inches}}$$

To convert **meters to feet**, multiply the length in meters by 3.28

Convert 12 meters to feet (12 m = _____ ft)

$$12 \times 3.28 = \mathbf{39.36 \text{ feet}}$$

B. English to Metric Equivalents

1inch	=	2.54 centimeters
0.5foot	=	150 millimeters
	=	15 centimeters
1 foot	=	30.5 centimeters
1yard	=	91.5 centimeters





Republic of the Philippines
Department of Education
National Capital Region
Schools Division Office – Muntinlupa City

English to Metric to Conversion.

To convert **feet to meter**, divide the length in feet by 3.28

Convert 82 feet to meters (82 ft = _____ m) = $82 / 3.28 = \mathbf{24.99 \text{ inches}}$

To convert **inches to centimeters**, multiply the length in inches by 2.54

Convert 50 inches to centimeters (50in= _____ cm)

$50 \times 2.54 = \mathbf{127 \text{ cm}}$

15inches= _____ millimetres = $15 \times 25.4 = \mathbf{381 \text{ mm}}$

5 yards = _____ centimeters = $5 \times 91.5 = \mathbf{457.2 \text{ cm}}$

IV. Activities:

Activity 1 Compute for the product.

- | | | | | |
|--|---|--|--|--|
| 1. $\begin{array}{r} 245 \\ \times 13 \\ \hline \end{array}$ | 2. $\begin{array}{r} 152 \\ \times 126 \\ \hline \end{array}$ | 3. $\begin{array}{r} 200 \\ \times 18 \\ \hline \end{array}$ | 4. $\begin{array}{r} 450 \\ \times 11 \\ \hline \end{array}$ | 5. $\begin{array}{r} 8.25 \\ \times 0.5 \\ \hline \end{array}$ |
|--|---|--|--|--|

6. $392 \div 7 =$ 7. $225 \div 25 =$ 8. $1050 \div 150 =$ 9. $375 \div 15 =$ 10. $200 \div 10 =$

Activity 2.

Directions: Convert the following English measurements to metric (vice-versa).

I. English to Metric

1. 5 Inches - _____ Centimeters
2. 3 Feet - _____ Millimeters
3. 10 Yards- _____ Centimeters
4. 6 Feet - _____ Meters
5. 8 Inches- _____ Millimeters

Activity 3.

Directions: Convert the following English measurements to metric (vice-versa).

II. Metric to English

6. 32 Millimeters - _____ Inches
7. 15 Centimeters - _____ Foot
8. 4 Meters - _____ Feet
9. 7 Centimeters - _____ Yards
10. 9 Meters - _____ Inches

V. Assessment: Multiple Choice - Directions: Choose the letter of the correct answer Use separate sheet of paper.

1. It is the process of taking one number away from another number.
A. addition B. subtraction C. multiplication D. division
2. In the mathematical sentence $2 \times 3 = 6$. The answer 6, is the _____.
A. sum B. difference C. Product D. quotient
3. To convert inch to centimeters, length in inch must be multiplied to _____.
A. 2.54 B. 25.4 C. 254 D. 2540
4. 10 feet is equivalent to _____ cm.
A. 30.5 B. 305 C. 3050 D. 3.05
5. To convert feet to meter, _____ the length in feet by 3.28.
A. add B. subtract C. multiply D. divide

VI. Reflection: List down 4 (four) other subjects areas where you use the fundamental operations. How or what did you use these operations for?





Republic of the Philippines
Department of Education
National Capital Region
Schools Division Office – Muntinlupa City

Writer: MYRADEL N. NIETES

Validator/s: GERRY V. DOMALANTA



Centennial Ave., Brgy. Tunasan, Muntinlupa City
Telephone No: 805-9935 / 805-9938
www.depedmuntinlupa.iedu.ph; sdo.muntinlupa@gmail.com

