Unicom Systems
Rockwell International

950 De Guigne Drive
Sunnyvale, California 94086

Form 2520-D-54-406-60M
Printed in U.S.A.

202

SLIDE RULE

Rockwell

OPERATING INSTRUCTIONS

OPERATING INSTRUCTIONS

FOREWORD

Your Rockwell 202 Slide Rule has been designed to perform the four basic functions of arithmetic. It automatically will compute natural and common logs and anti logs, trigonometric and inverse trigonometric functions, square roots, roots and powers for any real numbers, and reciprocals. The constant pi may be recalled for use at any time, and there is a fully addressable memory for storing data or accumulating results.

This instruction manual will assist you in understanding the various function keys and the operation of the calculator. Some practice examples have been included to enable you to gain proficiency in the use of your new calculator.

If you should ever need further assistance in computing your own figure-work, please feel free to get in touch with your local Unicom branch office or dealer.

CONTENTS

GENERAL INFORMATION

Calculators are supplied either with rechargeable or non-rechargeable batteries. Most of the information in this section is applicable only when your calculator comes with four AA (Ni-Cad) rechargeable batteries and authorized Rockwell AC/DC converter (charger).

BEFORE OPERATING YOUR CALCULATOR

Install the batteries in your calculator per instructions under BATTERY INSTALLATION OR REPLACEMENT.

DO NOT OPERATE YOUR CALCULATOR WITHOUT THE CHARGER UNTIL YOU HAVE CHARGED THE BATTERIES FOR FIVE HOURS. Failure to do so can damage the batteries.

WINDOW PROTECTOR

Your calculator may come with a thin celluloide-type cover over the display window for protection during shipping. The cover is attached to the case with adhesive lightly at both ends. You may remove the cover or leave it in place as you wish.

OPERATING POWER

Your calculator operates with four AA size Ni-Cad rechargeable batteries (GE No. GCF 500S, or equivalent). You may use the calculator while the Ni-Cad batteries are being charged; however, your battery charger is not an AC adapter and should not be left plugged in for more than 24 hours.

BATTERY CHARGER

To charge the Ni-Cad batteries, simply plug the charger into the jack provided in your calculator and the wall outlet. With the calculator turned off, allow approximately five (5) hours for the batteries to be fully charged. Your calculator CAN be used while the batteries are being charged, but the time required for the batteries to become fully charged will increase. The Ni-Cad batteries will provide a minimum of three (3) hours operating time when fully charged. The Ni-Cad battery life will be prolonged by recharging them after approximately three (3) hours operating time. The need for recharging is indicated by the display becoming dimmer. Do not continue to use your calculator on battery power once the display becomes dim. The Ni-Cad batteries may be permanently damaged by overuse without charging.

BATTERY INSTALLATION OR REPLACEMENT

The Ni-Cad batteries supplied with your calculator can be recharged approximately 500 times under normal service conditions before replacement is necessary. Failure of the batteries is indicated when the operating time between full charges becomes inconveniently short. Not all Ni-Cad batteries are alike. The use of the charger with batteries other than the specific type of Ni-Cad rechargeable battery previously specified may damage both the calculator and the batteries.

To install or replace the batteries, make sure the calculator power switch is in the "OFF" position and the battery charger is disconnected. Flip up the back stand, slide the battery access cover towards the stand, and lift out. Remove and discard the old batteries. DO NOT BURN DISCARDED BATTERIES AS THEY MAY EXPLODE.

When installing batteries, observe the battery polarity. The (+) pole of the battery must correspond with the (+) indication in the battery compartment. NOTE: The (+) pole of the battery is the one with the tip protruding as shown pictorially in the battery compartment. INCORRECT INSTALLATION OF THE BATTERIES CAN DAMAGE THE CALCULATOR.

The batteries supplied may be replaced with four AA size zinc-carbon or alkaline batteries which are not rechargeable. If the non-rechargeable batteries are used, DO NOT USE THE BATTERY CHARGER.

SPECIAL CARE AND PRECAUTIONS

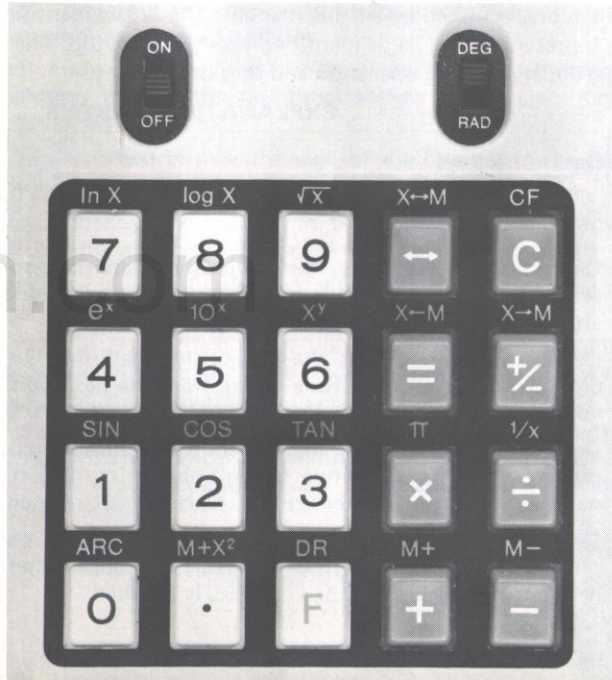
Observance of the following will prevent damage to and assure trouble-free service from your calculator, charger and the Ni-Cad batteries supplied with it.

1. Use only the charger furnished with your calculator.
2. Do not leave your calculator "ON" when the machine is not in use.
3. Do not charge the batteries continuously for more than twenty-four hours.
4. Do not use the charger with any batteries other than Ni-Cad rechargeable batteries specified under OPERATING POWER. Severe damage to your calculator may result from attempting to charge incorrect batteries.
5. Do not connect charger to calculator unless batteries are in place or calculator may be damaged.
6. Do not expose your calculator to extreme cold or heat. Do not place the 202 Slide Rule in direct, intense sunlight or near heating devices.
7. Do not drop or subject your calculator to heavy shock or vibration.

GETTING STARTED

After you have installed the Ni-Cad batteries supplied with your calculator, charge the batteries as explained on page 2. (Caution: If non-rechargeable batteries are used, do not attempt to charge the batteries.) When you place the power switch in the "ON" position, a zero will appear in the right hand digit. The calculator is now ready to accept key entries and perform calculations.

EXPLANATION OF KEYS



The Rockwell 202 Slide Rule has algebraic logic. This means it calculates the way you think. It also has a unique "second function" key that allows each key to have two separate uses. The first use, represented in this manual by a □, is identified on the keytop; the second use, represented by ( ), is identified above the keytop. The following explanation will help you understand the operation and uses of each key.

KEY	EXPLANATION OF KEYS
0 – 9	Data entry keys
•	Decimal point key
+	Depressing + performs the previously established condition (if any) then prepares the 202 Slide Rule to add the number on keyboard to the next entry after +, −, X, ÷, or = is touched.
−	Depressing − performs the previously established condition (if any) then prepares the 202 Slide Rule to subtract the next number entered from the number on the keyboard after +, −, X, ÷, or = is touched.
x	Depressing X performs the previously established condition (if any) then prepares the 202 Slide Rule to multiply the number on the keyboard by the next number entered after +, −, X, ÷, or = is touched.
÷	Depressing ÷ performs the previously established condition (if any) then prepares the 202 Slide Rule to divide the number on the keyboard by the next entry after +, −, X, ÷, or = is touched.

=	Depressing = performs the previously established condition, establishes a constant then terminates the calculation. The constant number will be the last entry made before touching =. The constant function will be the last function key (+, −, X, ÷) touched before depressing =.
+/−	Depressing this key will change the sign of the number in the display. The 202 Slide Rule has complete sign control during all operations.
↔	Touching ↔ exchanges the number in the display with the number in the working register (the previously displayed number or the constant).
C	1. Touching C immediately after a digit entry, before touching a function key, will clear the entry but not affect the working register. 2. Touching C after touching a function key or after clearing an entry will reset any calculating mode and clear all registers except the memory. 3. Touching C during an overflow (when a result has exceeded the 8 digit capacity or a mathematically impossible procedure has been tried) will reset the error condition. The number in the display is correct if multiplied by 10^8, and may be used in further calculations. Chain and constant modes are not affected by overflowing. 4. Touching C during scientific calculations halts the calculations, resets all modes and clears all registers except the memory.

FUNCTION KEY

[F]

Touching [F] conditions the 202 Slide Rule to perform the second function of the next key depressed. Depressing any key except (ARC) or (DR) after touching [F] will perform the second function of that key then reset the second function mode. For example: touching [5] [F] (M+) will add [5] to memory.

Touching [F] (ARC) and then (SIN) (COS) or (TAN) will cause the number in the display to be accepted as the value of the chosen trigonometric function. The angle that has the given value for the chosen function will be calculated, then displayed.

SECOND FUNCTIONS

(DR)

Touching [F] (DR) immediately after a digit entry will recall the last number displayed and terminate the number entry mode. If a single digit has been entered [F] (DR) will recall the previous result to the display. If more than one digit has been entered, [F] (DR) will eliminate the last digit. If 12345 has been entered incorrectly as 12346, the mistake may be corrected by touching [F] (DR) (CF) [5]. [F] (DR) eliminates the 6, (CF) eliminates the second function mode and restores the number entry mode and [5] corrects the error. Touching [F] (DR) without a digit entry will have no effect. Under any circumstances touching [F] (DR) will put the machine in second function mode. The 202 Slide Rule will carry out the second function of the next key depressed.

(M+) To add to memory.

(M−) To subtract from memory.

(X ←M) To display the number in memory.

(X→ M) To store the displayed number in memory. Any number previously in memory is destroyed.

(M ↔ X) To exchange the number being displayed with the number in memory.

(M + X^2) To add the square of the contents of the displayed number to memory. The display is not altered.

(π) Displays the constant pi – 3.1415926

(CF) Clear function. Touching (CF) after touching [F] will clear the second function mode and restore the previous conditions.

($^1/_x$) This function computes and displays the reciprocal of an entry or result.

($\sqrt{x}$) This function computes the square root of the number being displayed.

(X^y) This function will raise X to the power y for any real values of y. (X^y) may be chained with $(^1/X)$, (π) or the $(\sqrt{\ } x)$. $SIN^{1/3}x$ can be computed in a straightforward fashion.

When [F] (X^y) is touched, the displayed number is taken as the value of X. The natural log of X is computed. The function is completed by entering y and touching [=].

(ARC) Touching [F] (ARC) and then (SIN), (COS), or (TAN) will cause the number in the display to be accepted as the value of the chosen trigonometric function. The angle that has that value for that function will be calculated then displayed.

(SIN), (COS), (TAN), (e^x), (10^x), (InX) and (log X) are all self explanatory functions. The number in the display is taken as the value of x.

Trigonometric functions can be computed with angles expressed in either degrees or radians.

Chain calculations can be carried out with all except the logarithmic and trigonometric functions.

ADDITION AND SUBTRACTION

Problem	Keyboard Entry	Result
3 + 4 + 4 + 8 = 19	[C]	0.
	3 [+]	3.
	4 [+]	7.
	[+]	11.
	8 [=]	19.
7 − 2 = 5	7 [−]	7.
	2 [=]	5.
6.3 + 5.65 − 21.879	6.3 [+]	6.3
− 5.0128 + 3.1	5.65 [−]	11.95
= −11.8418	21.879 [−]	9.929 −
	5.0128 [+]	14.9418 −
	3.1 [=]	11.8418 −

To repeat add or subtract, touch [+] or [−] without re-entering the figure on the keyboard.
To automatically correct an error after [+] has been touched, touch [↔] [+/−] [+].

MULTIPLICATION AND DIVISION

Problem	Keyboard Entry	Result
4 x 5 = 20	4 [X] 5 [=]	4. 20.
379.8231 x .00528 = 2.0054659	379.8231 [X] .00528 [=]	379.8231 2.0054659
888888 x 246795 = 219373113960	888888 [X] 246795 [=]	888888 OVF 2193.7311
36 ÷ 3 = 12	36 [÷] 3 [=]	36. 12.
145.23 ÷ 12.08 = 12.02235	145.23 [÷] 12.08 [=]	145.23 12.02235

When an answer exceeds 8 whole numbers, the 202 Slide Rule will overflow and display the 8 most significant digits in the answer. Touch [C] and continue. The decimal point will appear 8 places to the left of the correct position. Multiply the answer in the display by 10^8 to obtain a decimally correct answer.

All answers are truncated.

CONSTANTS

Problem	Keyboard Entry	Result
Constant Multiplier	12 [X]	12.
12 x 2 = 24	2 [=]	24.
3 x 2 = 6	3 [=]	6.
10 x 2 = 20	10 [=]	20.
Constant Divisor	20 [÷]	20.
20 ÷ 5 = 4	5 [=]	4.
30 ÷ 5 = 6	30 [=]	6.
Constant Addend	7 [+]	7.
7 + 3 = 10	3 [=]	10.
4 + 3 = 7	4 [=]	7.
Constant Subtrahend	9 [−]	9.
9 − 4 = 5	4 [=]	5.
7 − 4 = 3	7 [=]	3.

The last function key touched ([+], [−], [X], [÷]) and the last number entered before touching [=] will be the constants. This rule is always valid, even for chain calculations.

THE MEMORY: ADDITION AND SUBTRACTION

Problem	Keyboard Entry	Result
$3 - 4 + 6 = 5$	3 [F] (X→M) (This clears any number in memory)	3.
	4 [F] (M−)	4.
	6 [F] (M+)	6.
	[F] (X←M)	5.
$3 + 5 = 8$ $9 - 3 = 6$ 14	3 [+]	3.
	5 [=]	8.
	[F] (X→M)	8.
	9 [−]	9.
	3 [=]	6.
	[F] (M+)	6.
	[F] (X←M)	14.

Note: To clear memory, touch the following keys: [C] [F] (X→M).

ACCUMULATION OF PRODUCTS AND QUOTIENTS

Problem	Keyboard Entry	Result
$2 \times 3 = 6$ $5 \times 8 = 40$ $12.5 \times 2 = 25$ 71	2 [X]	2.
	3 [=]	6.
	[F] (X→M)	6.
	5 [X]	5.
	8 [=]	40.
	[F] (M+)	40.
	12.5 [X]	12.5
	2 [=]	25.
	[F] (M+)	25.
	[F] (X←M)	71.

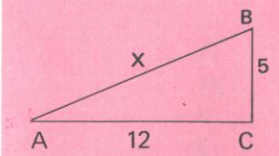
Be sure to clear memory before using it again.

CHAIN CALCULATIONS

Problem	Keyboard Entry	Result
[(2 + 4) x 5 ÷ 7 + 3] x 6 = 43.714285	2 [+]	2.
	4 [X]	6.
	5 [÷]	30.
	7 [+]	4.2857142
	3 [X]	7.2857142
	6 [=]	43.714285
(2 + 3) (4 + 5) (6 − 2) = 180	2 [+]	2.
	3 [X]	5.
	4 [F] (X→ M)	4.
	5 [F] (M+)	5.
	[F] (X ←M)	9.
	[X]	45.
	6 [F] (X→ M)	6.
	2 [F] (M−)	2.
	[F] (X ←M)	4.
	[=]	180.

[+] [−] [X] [÷] ($\sqrt{x}$) and ($^1/x$) may all be used in sequential (chain) operations. Please consider all parentheses in problem before starting to calculate.

THE PYTHAGOREAN THEOREM

Problem	Keyboard Entry	Result
 Given right triangle ABC with sides 5 and 12, find the hypotenuse X. $C = 5^2 + 12^2$	5 [F] ($M + X^2$)	5.
	12 [F] ($M + X^2$)	12.
	[F] (X ←M)	169.
	[F] ($\sqrt{x}$)	13.

Be sure to clear memory before using it.

MEAN, VARIANCE, STANDARD DEVIATION AND STANDARD ERROR OF THE MEAN

Problem	Keyboard Entry	Result
Find the mean, variance, standard deviation and standard error of the mean of the following values of x (10, 11, −3, 14, 18) (Note: n = 5)	10 [F] (M + X^2)	10.
	[+]	10.
	11 [F] (M + X^2)	11.
	[+]	21.
	3 [+/−]	3.−
	[F] (M + X^2)	3.−
	[+]	18.
	14 [F] (M + X^2)	14.
	[+]	32.
	18 [F] (M + X^2)	18.
	[÷]	50.
	(n)5 [X]	10 (Mean)
1. $M = \frac{\Sigma xi}{n}$		
M = 10.		
2. $V = \frac{\Sigma X_i^2 - \frac{(\Sigma X_i)^2}{n}}{n-1}$		
V = 62.5		

Problem	Keyboard Entry	Result
3. $SD = \sqrt{\frac{\Sigma X_i^2 - \frac{(\Sigma x_i)^2}{n}}{n-1}}$	[↔]	5.
	[=]	50.
	[=]	500.
	[F] (M−)	500.
	[F] (X ←M)	250.
	[÷]	250.
	(n−1)4 [=]	62.5 (Variance)
SD = 7.9056941	[F] ($\sqrt{x}$)	7.9056941 (Standard Deviation)
4. $SE = \frac{SD}{\sqrt{n}}$	[÷]	7.9056941
	(n)5	5.
	[F] ($\sqrt{x}$)	2.2360679
SE = 3.535534	[=]	3.535534 (Standard error of the mean)

Be sure to clear the memory before using it.

TRIGONOMETRIC FUNCTIONS

Problem	Keyboard Entry	Result
	DEG/RAD switch to DEG	
sin 30° = 0.5	30 [F] (SIN)	0.5
cos (−35°) = 0.8191520	35 [+/-] [F] (COS)	0.819152
tan 210° = 0.577350	210 [F] (TAN)	0.57735
	DEG/RAD switch to RAD	
sin 1.5 radians = 0.997495	1.5 [F] (SIN)	0.997495
tan 1.1 radians = 1.964758	1.1 [F] (TAN)	1.964759

INVERSE TRIGONOMETRIC FUNCTIONS

Problem	Keyboard Entry	Result
	DEG/RAD switch to DEG	
arc cos .8660254 = 30°	.8660254 [F] (ARC) (COS)	30.
arc sin .389 = 22.89229	.389 [F] (ARC) (SIN)	22.89229
arc tan 1 = 45°	1 [F] (ARC) (TAN)	44.99999
arc sec 1.9051 = 58.33802°	1.9051 [F] ($^1/_x$) [F] (ARC) (COS)	0.5249068 58.33802

For angles expressed in radians, set the DEG/RAD switch to RAD.

ROOTS AND POWERS

Problem	Keyboard Entry	Result
$2^8 = 256$	2 F (X^y) 8 =	0.693147 255.9995
$(5.1)^{3.92} = 593.8486$	5.1 F (X^y) 3.92 =	1.629241 593.8486
$23^{-.0194} = 0.940985$	23 F (X^y) .0194 +/- =	3.135494 0.940985
$(27)^{\frac{1}{3}} = 3$	27 F (X^y) 3 F ($^1/x$) =	3.295836 0.3333333 2.999998
999999^4 = (overflow)	999999 F (X^y) 4 =	13.81551 OVF 0. OVERFLOW (Touch C and continue)

The X^y function may be used for any real numbers X and y, $X > 0$. This function may be used in conjunction with ($\sqrt{x}$) ($^1/x$) and (π).

HYPERBOLIC FUNCTIONS

Problem	Keyboard Entry	Result
$\sinh 1.1 = 1.3356469$ formula: $\sinh a = \frac{e^a - e^{-a}}{2}$	1.1 F (e^x) − F ($^1/x$) ÷ 2 =	3.004165 3.004165 0.3328711 2.6712939 1.3356469
$\cosh .8 = 1.3374385$ formula: $\cosh a = \frac{e^a - e^{-a}}{2}$	.8 F (e^x) + F ($^1/x$) ÷ 2 =	2.22554 2.22554 0.4493291 2.6748691 1.3374345
$\tanh \frac{\pi}{3} = 0.7807141$ formula: $\tanh a = \frac{e^a - e^{-a}}{e^a + e^{-a}}$	F (π) ÷ 3 = F (e^x) F (X→M) − F ($^1/x$) F (M+) ÷ F (X←M) =	3.1415926 3.1415926 1.0471975 2.849652 2.849652 2.849652 0.35092 0.35092 2.498732 3.200572 0.7807141

COMPOUND INTEREST PROBLEMS

Problem	Keyboard Entry	Result
1. $1000 is invested at a 7.1% annual rate. Interest is compounded quarterly. How much will the investment be worth in 8 quarters. Formula: Present value x $(1+i)^n$ = Future value	.071 ÷ 4 + 1 = F (X^y) 8 = X 1000 =	0.071 0.01775 1.01775 0.017594 1.151139 1.151139 1151.139 Future Value
2. How much must be invested now to grow to $25,000 in 3 years (12 quarters). The quarterly interest rate is 1.5%. Formula: $\frac{\text{Present Value}}{} = \frac{\text{Future value}}{(1+i)^n}$	1.015 F (X^y) 12 = ÷ 25000 ↔ =	0.014888 1.195609 1.195609 1.195609 20909.845 Present Value

Problem	Keyboard Entry	Result
3. Uniform Loan Payment $3,000 is to be borrowed from a bank charging 7.5% interest. The loan is to be repaid in 24 monthly payments. Find the payment. Formula: Payment = $\frac{(1+i)^n\ i}{(1+i)^n - i}$ x Principal	.075 ÷ 12 + F (X→M) 1 = F (X^y) 24 = X F (X↔M) ÷ 1 F (M−) F (X←M) X 3000 =	0.075 0.00625 0.00625 1.00625 0.00623 1.161277 1.161277 0.00625 0.0072579 1. 0.161277 0.0450026 135.0078 Loan Payment

CONVERTING FROM RECTANGULAR TO POLAR COORDINATES

Problem	Keyboard Entry	Result
Convert the point (24,7) into polar coordinates. Formulas: Magnitude of Vector V = $\sqrt{x^2+y^2}$ angle σ = arc tan $\frac{y}{x}$ Where x = 24 and y = 7	7 [F] ($M + X^2$) ÷ 24 [F] ($M + X^2$) = [F] (ARC) (TAN) [F] ($X \leftarrow M$) [F] ($\sqrt{x}$)	7. 7. 24. 0.2916666 16.2602 angle σ 625. 25. Vector V

To clear memory and the working register before starting this problem touch [C] [F] ($X \rightarrow M$).

CONVERTING FROM DEGREES TO RADIANS OR FROM RADIANS TO DEGREES

Problem	Keyboard Entry	Result
Express 12° in radians 12° = 0.209439 Rads	DEG/RAD switch to DEG 12 [F] (SIN)	0.207911
	DEG/RAD switch to RAD [F] (ARC) (SIN)	0.209439
Express $\frac{\pi}{3}$ radians in degrees $\frac{\pi}{3}$ Rads = 60°	DEG/RAD switch to RAD [F] (π) ÷ 3 = [F] (SIN)	3.1415926 3.1415926 1.0471975 0.866025
	DEG/RAD switch to DEG [F] (ARC) (SIN)	59.99995

CHARGE ON A CAPACITOR

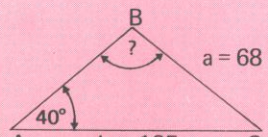
Problem	Keyboard Entry	Result
Determine V_c t if r = 50 Kilohms c = 0.1 Microfarads t = 15 Msec. V_i = 25 Volts Formula: $V_c = V_i (1 - e^{-\frac{t}{rc}})$	.015 ÷ .0000001 ÷ 50000 = +/- F (e^x) − 1 ↔ X 25 =	0.015 150000. 3. 3.− 0.049787 0.049787 0.049787 0.950213 23.755325

HARMONIC MEAN AND PARALLEL RESISTANCE

Problem	Keyboard Entry	Result
Find the harmonic mean of 5, 8, and 12. Formula: $HM = \frac{n}{\frac{1}{X_1} + \frac{1}{X_2} \ldots + \frac{1}{X_n}}$ n = 3 HM = 7.3469393	5 F ($1/x$) + 8 F ($1/x$) + 12 F ($1/x$) ÷ 3 ↔ =	0.2 0.2 0.125 0.325 0.0833333 0.4083333 0.4083333 7.3469393

Note: To determine PARALLEL RESISTANCE,
Where $\frac{1}{R_e} = \frac{1}{R_1} + \frac{1}{R_2} + \ldots + \frac{1}{R_n}$, simply index 1 instead of n before touching ↔ =.

LAW OF SINES

Problem	Keyboard Entry	Result
	DEG/RAD switch to DEG	
	40 F (SIN)	0.642788
	X	0.642788
	105 ÷	67.49274
	68 =	0.9925402
	F (ARC) (SIN)	82.99719 angle B

Given the above triangle, find angle B.

Formula:

$$\frac{a}{\text{SIN A}} = \frac{b}{\text{SIN B}} = \frac{c}{\text{SIN C}}$$

or

$$\text{SIN B} = \frac{b \text{ SIN A}}{a}$$

Where

A = 40°
a = 68
b = 105

$$B = \text{ARC SIN}\left[\frac{b \text{ SIN A}}{a}\right]$$

RANGE OF ACCURACY

Your Rockwell 202 Slide Rule is capable of performing the scientific functions listed below with great accuracy. All calculations take less than three seconds. (In general, functions will rarely take more than 1.5 seconds.) The six leftmost digits displayed will always be correct to within ±1 in the sixth digit displayed, including any suppressed zeros necessary to achieve six digits.

TRIGONOMETRIC FUNCTIONS

Sin X, cos X, and tan X may be calculated with X in degrees or radians according to the position of the DEG/RAD switch. The result will have the correct algebraic sign. The range of magnitude for these functions will be $-360^\circ \leq X \leq +360^\circ$ (2π radians). For values of X outside of this range, the accuracy may be less than six digits and the computation time greater than 3 seconds. Tan X accuracy may be less than six digits for $89.5^\circ \leq |X| - 180^\circ n \leq 90.5^\circ$ (corresponding radians) where n = 0, 1, 2, 3, ... If X is large enough to cause an overflow in an intermediate result, the error condition will be set and computation terminated.

INVERSE TRIGONOMETRIC FUNCTIONS

Arc Sin X and Arc Cos X

The result will be displayed in degrees or radians (according to the position of the DEG/RAD switch) with the correct algebraic sign and with the following principal angles:

-90° ($-\pi/2$ radians) $\leq$ arc sin X ≤ 90 ($\pi/2$ radians)

0° (0 radians) $\leq$ arc cos X ≤ 180 (π radians)

The acceptable range of magnitude of X shall be $|X| \leq 1$. For values of $|X| < 1$, the 202 Slide Rule will overflow.

	Arc Tan X The result will be displayed in degrees or radians (according to the position of the DEG/RAD switch) with the correct algebraic sign and with the following principal angles: -90° ($-\pi/2$ radians) $\leq$ arc tan X $\leq 90^\circ$ ($\pi/2$ radians). The acceptable range of magnitude of X shall be $0.0000001 \leq \|X\| \leq 99999999$ and X = 0.
LOGARITHMIC FUNCTIONS	Both natural and common logarithms may be calculated. The acceptable range of the argument is $0.0000001 \leq X \leq 99999999$. For values of $X \leq 0$, the 202 Slide Rule will overflow.
EXPONENTIAL FUNCTIONS (e^x & 10^x)	The range of the argument for e^x shall be $\ln 0.000001 \leq X \leq \ln 99999999$ (approximately). The range of the argument for 10^x is $-6 \leq X < 8$. If the value of X is outside of these ranges the 202 Slide Rule will overflow or underflow.
$\sqrt{x}$	The range of the argument is $0 \leq X \leq 99999999$. If X is negative, the 202 Slide Rule will overflow.
X^y	The range of X is $0.0000001 \leq X \leq 99999999$. The range of y shall be $\frac{\ln 0.000001}{\ln X} \leq y \leq \frac{\ln 99999999}{\ln X}$. The calculation is in two parts according to the formula $X^y = e^{y \ln x}$.

NOTES

NOTES

Unicom Systems
Rockwell International