Expected Inputs/ Outputs

Padding

Test Case 1: <7 digits decimal input

Method: RTN-TE	Number: 1	Exponent: 71
Rounded	Number: 0000001	
	Exponent: 71	
Binary	0 10000 101100 0000000000 0000000001	
Hex	42C00001	

Normalized/ Denormalized

Test Case 1: Positive Normalized Input

Method: RTN-TE	Number: 1234567	Exponent: 71
Rounded	Number: 1234567	
	Exponent: 71	
Binary	0 10001 101100 0100110100 1011100111	
Hex	46C4D2E7	

Test Case 2: Negative Normalized Input

Method: RTN-TE	Number: -1234567	Exponent: 71
Rounded	Number: -1234567	
	Exponent: 71	
Binary	11000110110001001101001011100111	
Hex	C6C4D2E7	

Test Case 3: Positive input that reaches infinity when normalized

Method: RTN-TE	Number: 123456700	Exponent: 90
Rounded	Number: 1234567	
	Exponent: Infinity	
Binary	01111000000000000000000000000000	

Hex	78000000

Test Case 4: Positive infinity input that becomes less than 101 exp when normalized

Method: RTN-TE	Number: 12345.67	Exponent: 92
Rounded	Number: 1234567	
	Exponent: 90	
Binary	01000111111101001101001011100111	
Hex	47F4D2E7	

Test Case 5: Positive denormalized infinity

Method: RTN-TE	Number: 1.234567	Exponent: 96
Rounded	Number: 1234567	
	Exponent: 90	
Binary	01000111111101001101001011100111	
Hex	47F4D2E7	

Test Case 6: Negative denormalized infinity

Method: RTN-TE	Number: -1.234567	Exponent: 96
Rounded	Number: -1234567	
	Exponent: 90	
Binary	11000111111101001101001011100111	
Hex	C7F4D2E7	

Test Case 7: Positive normalized infinity

Method: RTN-TE	Number: 1234567	Exponent: 91
Rounded	Number: 1234567	
	Exponent: Infinity	
Binary	01111000000000000000000000000000	
Hex	78000000	

Test Case 8: Negative normalized infinity

Method: RTN-TE	Number: -1234567	Exponent: 91
Rounded	Number: 0000000	
	Exponent: Infinity	
Binary	11111000000000000000000000000000	
Hex	F8000000	

Test Case 9: Shift to infinity

Method: RTN-TE	Number: 1	Exponent: 91
Rounded	Number: 0000010	
	Exponent: 90	
Binary	01000011111100000000000000010000	
Hex	43F00010	

Test Case 10: Negative exponent

Method: RTN-TE	Number: 1234567	Exponent: -10
Rounded	Number: 1234567	
	Exponent: -10	
Binary	00100101101101001101001011100111	
Hex	25B4D2E7	

Rounding

Test Case 1: Positive Truncate

Method: Truncate	Number: 12345678	Exponent: 71
Rounded	Number: 1234567	
	Exponent: 72	
Binary	01000110110101001101001011100111	
Hex	46D4D2E7	

Test Case 2: Negative Truncate

Method: Truncate	Number: -12345678	Exponent: 71
Rounded	Number: -1234567	
	Exponent: 72	
Binary	11000110110101001101001011100111	
Hex	C6D4D2E7	

Test Case 3: Positive Floor

Method: Floor	Number: 12345678	Exponent: 71
Rounded	Number: 1234567	
	Exponent: 72	
Binary	01000110110101001101001011100111	
Hex	46D4D2E7	

Test Case 4: Negative Floor

Method: Floor	Number: -12345678	Exponent: 71
Rounded	Number: -1234568	
	Exponent: 72	
Binary	11000110110101001101001011101000	
Hex	C6D4D2E8	

Test Case 5: Positive Ceiling

Method: Ceiling	Number: 12345678	Exponent: 71
Rounded	Number: 1234568	
	Exponent: 72	
Binary	01000110110101001101001011101000	
Hex	46D4D2E8	

Test Case 6: Negative Ceiling

Method: Ceiling	Number: -12345678	Exponent: 71
	Number: -1234567	

Rounded	Exponent: 72
Binary	11000110110101001101001011100111
Hex	C6D4D2E7

Test Case 7: Positive RTN-TE (less than 0.5)

Method: RTN-TE	Number: 12345671	Exponent: 71
Rounded	Number: 1234567	
	Exponent: 72	
Binary	01000110110101001101001011100111	
Hex	46D4D2E7	

Test Case 8: Positive RTN-TE (greater than 0.5)

Method: RTN-TE	Number: 12345676	Exponent: 71
Rounded	Number: 1234568	
	Exponent: 72	
Binary	01000110110101001101001011101000	
Hex	46D4D2E8	

Test Case 9: Positive RTN-TE (equals 0.5 Even)

Method: RTN-TE	Number: 12345665	Exponent: 71
Rounded	Number: 1234566	
	Exponent: 72	
Binary	01000110110101001101001011100110	
Hex	46D4D2E6	

Test Case 10: Positive RTN-TE (equals 0.5 Odd)

Method: RTN-TE	Number: 12345675	Exponent: 71
Rounded	Number: 1234568	
	Exponent: 72	
Binary	01000110110101001101001011101000	

Hex	46D4D2E8

Test Case 11: Negative RTN-TE (less than 0.5)

Method: RTN-TE	Number: -12345671	Exponent: 71
Rounded	Number: -1234567	
	Exponent: 72	
Binary	11000110110101001101001011100111	
Hex	C6D4D2E7	

Test Case 12: Negative RTN-TE (greater than 0.5)

Method: RTN-TE	Number: -12345676	Exponent: 71
Rounded	Number: -1234568	
	Exponent: 72	
Binary	11000110110101001101001011101000	
Hex	C6D4D2E8	

Test Case 13: Negative RTN-TE (equals 0.5 Even)

Method: RTN-TE	Number: -12345665	Exponent: 71
Rounded	Number: -1234566	
	Exponent: 72	
Binary	11000110110101001101001011100110	
Hex	C6D4D2E6	

Test Case 14: Negative RTN-TE (equals 0.5 Odd)

Method: RTN-TE	Number: -12345675	Exponent: 71
Rounded	Number: -1234568	
	Exponent: 72	
Binary	11000110110101001101001011101000	
Hex	C6D4D2E8	

Test Case 15: Round that reaches infinity

Method: Truncate	Number: 12345678	Exponent: 90
Rounded	Number: 1234567	
	Exponent: Infinity	
Binary	01111000000000000000000000000000	
Hex	78000000	

Nan

Test Case 1: Letter

Method: RTN-TE	Number: a	Exponent: 90
Rounded	Number: Invalid Input	
	Exponent: Invalid Input	
Binary		
Hex		

Test Case 2: Decimal point

Method: RTN-TE	Number: 1234567	Exponent: 90.0
Rounded	Number: N/A	
	Exponent: N/A	
Binary		
Hex		

Test Case 3: No input number

Method: RTN-TE	Number:	Exponent: 90
Rounded	Number: Invalid Input	
	Exponent: Invalid Input	
Binary		
Hex		

Test Case 4: No input exponent

Method: RTN-TE	Number: 1234567	Exponent:
Rounded	Number: Invalid Input	
	Exponent: Invalid Input	
Binary		
Hex		

Export