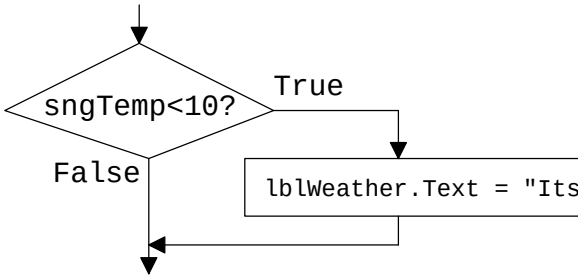
Name:_____

1. The If ...Then statement allows you to skip over some code based on a results of a comparison. For example,

```
sngTemp = CSng(txtTemperature.Text)
If sngTemp < 10 Then
    lblWeather.Text = “Its bitterly cold!”
End If
```



Comparisons are done using binary, *relational operators* which result in a Boolean value of either `True` or `False`. VB has the following *relational operators*: `<, >, =, <=, >=, <>`

Logical operators (And, Or, Not, Xor, AndAlso (short-circuit), OrElse (short-circuit)) allow Boolean expressions to be combined for complex comparisons. For example, if we wanted to set the lblWeather.Text property to one of the following strings based on the value of sngTemp, then we could use the following If ... Then statements.

Temperature	String
temperature < 10	“Its bitterly cold!”
10 <= temperature <= 32	“Its freezing outside.”
32 < temperature < 68	“Light jacket weather.”
68 <= temperature	“Its warm outside.”

```
sngTemp = CSng(txtTemperature.Text)
If sngTemp < 10 Then
    lblWeather.Text = “Its bitterly cold!”
End If

If 10 <= sngTemp And sngTemp <= 32 Then
    lblWeather.Text = “Its freezing outside.”
End If

If sngTemp > 32 And sngTemp < 68 Then
    lblWeather.Text = “Light jacket weather.”
End If

If sngTemp >= 68 Then
    lblWeather.Text = “Its warm outside.”
End If
```

1. Draw the flow chart for the `If ... Then` statements that implements the table.

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2. Given the operator precedence for VB's mathematical, Boolean, and logical operations is (from highest to lowest):

- Operations that are enclosed in parentheses.
- Exponentiation (^)
- Unary negation (-)
- Multiplication (*), floating point division (/)
- Integer division (\)
- Modulus remainder (Mod)
- Addition (+) and subtraction (-)
- String concatenation (&)
- Relational operators (=, <>,<, >, <=, >=)
- Not
- And
- Or
- Xor

Operators within each level are performed left-to-right. For each of the expressions, determine if the expression is legal. If it is, determine the order of operations:

a) `x + 5 < y^2 and not y >= 6`

b) `not x < 8 or 3y >= 10`

c) 70 <= temp <= 100 or temp < 0

3. How would you rewrite the code from question 1 to use an If ... Then ... Elseif statement?

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4. In the “real world” how do you alphabetize strings?

ASCII and Unicode Character Representation

0	NUL	16	DLE	32		48	0	64	@	80	P	96	`	112	p
1	SOH	17	DC1	33	!	49	1	65	A	81	Q	97	a	113	q
2	STX	18	DC2	34	"	50	2	66	B	82	R	98	b	114	r
3	ETX	19	DC3	35	#	51	3	67	C	83	S	99	c	115	s
4	EOT	20	DC4	36	$	52	4	68	D	84	T	100	d	116	t
5	ENQ	21	NAK	37	%	53	5	69	E	85	U	101	e	117	u
6	ACK	22	SYN	38	&	54	6	70	F	86	V	102	f	118	v
7	BEL	23	ETB	39	'	55	7	71	G	87	W	103	g	119	w
8	BS	24	CAN	40	(	56	8	72	H	88	X	104	h	120	x
9	HT	25	EM	41	)	57	9	73	I	89	Y	105	i	121	y
10	LF	26	SUB	42	*	58	:	74	J	90	Z	106	j	122	z
11	VT	27	ESC	43	+	59	;	75	K	91	[	107	k	123	{
12	FF	28	FS	44	,	60	<	76	L	92	\	108	l	124	|
13	CR	29	GS	45	-	61	=	77	M	93	]	109	m	125	}
14	SO	30	RS	46	.	62	>	78	N	94	^	110	n	126	~
15	SI	31	US	47	/	63	?	79	O	95	_	111	o	127	DEL

5. What would the result of the following comparisons?

a) “catelog” > “bat”

b) “abcdef” < “abc123”

c) “Mark” < “bat”

d) “” < “ “