

FIT 100 A Little Review:
What is the Value of wicked, dude?

Take out a piece of scratch paper. See if you can answer the questions below.

```
Dim wicked As Integer
Dim dude As Integer
dude = 5
wicked = 2
dude = wicked * 5    [ * means multiply ]
dude = dude + 3
wicked = dude + 1
```

Questions:

- What values do *dude* and *wicked* contain at the end of this code?

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FIT 100 Expressions

Computing is **NOT** Algebra: Even though = is used in assignment statements, it means "becomes". In Algebra it means equality. So, `score = score + 3` is essential to computing, but meaningless in Algebra

CONCEPT: Expressions are a means of performing the actual computation in a program. They are formulae made from variables and operators, e.g. calculator operations:

`+`, `-`, `*`, `/`, `^`

- `weeks = days / 7` divide value of days by 7
- `totalAfterTax = totalPrice * 1.087` multiply the two values

The Fundamental Rules of Assignment:

- The general form of an assignment statement is `<variable name> <assignment symbol> <expression>`
- The *flow of information* is always right - to - left
- The expression is evaluated before the assignment is made

```
score = score + 3
```

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FIT 100 Operators:

CONCEPT: Operators are used to *combine* expressions. They are used in combination with values, or variables that contain values – both called *operands* when using operators- to complete the expression formulae

Operators in programming languages aren't always what you find on a pocket calculator

- Operators like `+` taking 2 operands are called *binary*: `a + b`
- Operators like `-` taking 1 operand are called *unary*: `- a`
- A very useful operator is concatenate, `&` in VB6, which connects two strings or variables together:
 - plural = "dog" & "s"

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When A Decision Must Be Made:

Conditionals

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Computers can be programmed to make decisions – that is, to choose one path to follow from many alternatives. Conditionals are the programming tool that implements this concept

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The Reason to Have Conditionals:

- ▼ **CONCEPT:** computer programs execute all statements in the program in order unless the program is instructed to only execute certain statements under certain conditions
- ▼ For example:
 - If (something is true) Then
 - do this part of the program
 -
 -
 - End If

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Logical (Relational) Operators:

- ▼ **CONCEPT:** Operators are also used *compare* expressions (relational operators)
- ▼ It's like asking a true/false question
 - A < B means "A is less than B, true or false?"
 - A >= B
- ▼ The relational operators in VB6 are:

a < b	less than	a > b	greater than
a <= b	less than or equal to	a >= b	greater than or equal to
a = b	equal to	a <> b	not equal

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Basic Conditional

- ▼ Use conditionals to test to see if a condition holds:
 - If temp < 32 Then
 - state = "frozen"
 - form = "ice"
 - End If
- ▼ **General form of basic conditional:**

```
If <T / F expression> Then
  <code statements>
End If
```
- ▼ What this means:
 - First, the <T / F expression> is evaluated
 - If the outcome is **true**, then the statements that follow **Then** are performed
 - If the outcome is **false**, then the statements that follow **Then** are skipped

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General Conditional Statement

- ▼ **CONCEPT:** When one set of statements must be performed for the true conditions and a different set of statements are needed for the false conditions, use the If-Then-Else statement
- ▼ **General form**

```
If <T / F expression> Then
  <code statements>
Else
  <code statements>
End If
```

<pre>If sky = "clear" AND temp >70 Then clothing = "tank top" Else clothing = "sweats" End If</pre>
--

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"Nested" If-Then-Else

- CONCEPT: An advantage of the general conditional is that it can be imbedded within another conditional

```

If sky = "clear" AND temp > 70 Then
    clothing = "tank top"
    If laundry = "clean" Then
        clothingColor = "purple"
    End if
Else
    clothing = "sweats"
    If ground = "muddy" Then
        shoes = "boots"
    End if
End If
  
```

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Exercise #1

- What does this print?

```

Dim x As Integer
x=10
If x=1 Then
    Print "octopus"
Elseif x=2 Then
    Print "squid"
Else
    Print "clam"
End If
  
```

```

clam
mollusk
  
```

2/15/2002 Print "mollusk"

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Let's Move From Theory to Practice!

- We want to write a program that takes an integer as input and outputs whether or not the integer is a positive number
 - How should we get the user's input?
 - How do we tell if the input is positive or negative?
 - What should we do with an input of zero?
 - How should we output the "positive" or "negative" evaluation to the user?
 - Be Creative!
 - How do we get started?

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