

**Answers to “Test Yourself”
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Where’s the *Archilochus colubris*?

**Dr. Richard L. Elgin, PLS, PE
Elgin Surveying & Engineering, Inc.
Rolla, Missouri**

First lets convert the velocities and times given to distances:

$$\begin{array}{l} +X \quad 3.919 \text{ ft./min.} \quad \times \quad 3.767 \text{ min.} \quad = \quad 14.7629 \text{ ft.} \\ -Y \quad 3.077 \text{ ft./min.} \quad \times \quad 1.985 \text{ min.} \quad = \quad 6.10785 \text{ ft.} \\ +Z \quad 4.628 \text{ ft./min.} \quad \times \quad 2.111 \text{ min.} \quad = \quad 9.7697 \text{ ft.} \end{array}$$

Now for coordinates:

	Begin			End
X =	20	+	14.7629	= 34.7629
Y =	5	-	6.10785	= -1.10785
Z =	0	+	9.7697	= 9.7697

So....

In the X,Y plane, the distance traveled (from 0,0) = 34.78055

In “Z”, the distance traveled is 9.7697

Combining these two, the distance back to 0, 0, 0 is 36.1266

Answer: 36.1266

And the answer to what is an *Archilochus colubris*??? Hummingbird