# Mr. Murray's Vexing Vector AdVenture.

I am TERRIFIED of the lines (my mother has a very fragile back). Out of devotion for my Madre, I have learned to walk only East, West, North, and South. So, during my recent vacation to saunter in the park, I walk my usual 15 m east, 18 m north, 12 m west, 10 m south and (just to confuse anyone that might be following me that day) another 3 m east. This day, however, there is a people-polluting pigeon in the park. The bird waits for me to stop, flies to a tree branch directly above my head and pollutes me! How far (and in what direction) did the pigeon have to fly to reach its polluting perch and give me a really bad hair day?

$$X_t = +15 -12 +3 = +6 \text{ east}$$
$$Y_t = +18 -10 = +8 \text{ north}$$
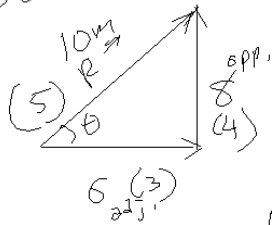
$$\theta = \tan^{-1}\left(\frac{8}{6}\right) = 53°$$
$$R = \sqrt{8^2 + 6^2} = \sqrt{100} = 10\,m$$

Unfortunately for me, the people-polluting pigeon precariously perched above me is a phenomenal shot! SOOOO, to de-foul my fabulous follicles of hair, I want to go wash in the fountain. My sordid, confused, one-dimensional brain can see the fountain, but in deference to my poor mother's posterior, I walk 8 m east, 10 m north, 15 m west, and 18 m south of my current, soiled position. If my brain was capable of moving at angles, what would have been a faster, more direct path to the fountain (magnitude and direction, of course)?

$$X_t = 8m - 15 = -7$$
$$Y_t = 10 -18 = -8$$

$$\theta = \tan^{-1}\left(\frac{8}{7}\right) = 48.8°$$
$$R = \sqrt{49 + 64} = \sqrt{} = 10.6\,m$$
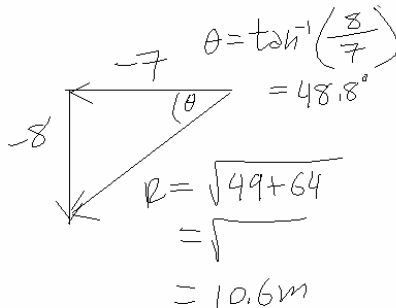
(continued, of course, on the back)

Whilst cleaning my foul, resplendent hair, a nefarious bee becomes enamored with my flowery, yet stylish, Hawaiian shirt, mistaking it for a nectar-laden smorgasbord. Realizing a mutualistic relationship with the bee could not be, I immediately run for my life!!!! Forgetting my neurotic problem with my mother's spinal column, I run 25 m at 35º N of E, then 50 m at 45º N of W. The lazy bee watches my futile attempt to flee, waits for me to stop, and flies directly to me. In what direction and how far does the bee have to fly to get to my lovely, textile pineapples?
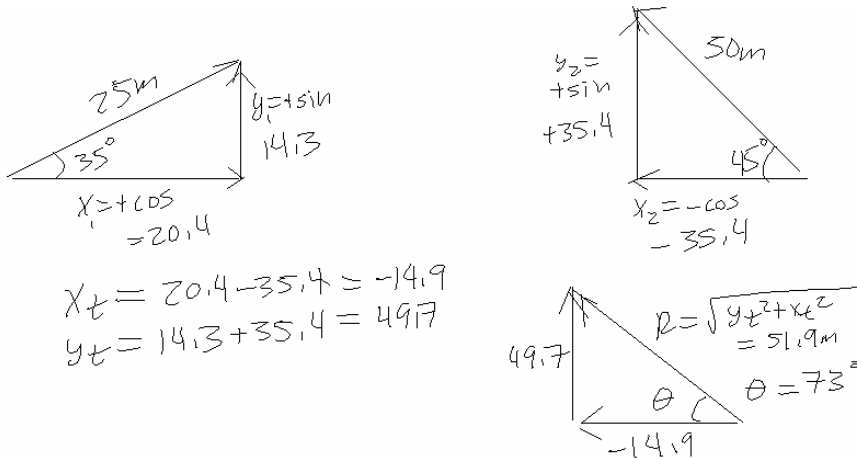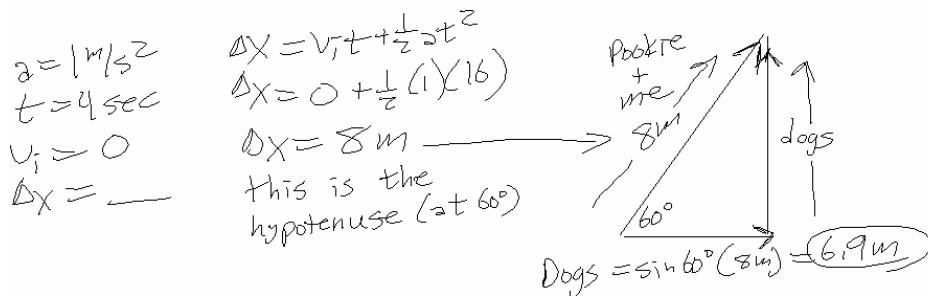

OUCH! He stung me! This day will go down into my annals as one of my worst days ever! So, as I am "licking my wounds", I notice a group of Mr. Parson's students launching cats into the dog park using, appropriately enough, a ACME-544 cat-apult. Being a friendly with most felines, I decide to catch the furry acrobats from a slobbery, canine death. I quickly pull out my calculator (which I always keep at the ready) and figure out how far away to lie on the ground to catch the flying felines. If they launch "Pookie" from the ground at 35º and 20 m/s, how far away do I need to be to catch "Pookie"?
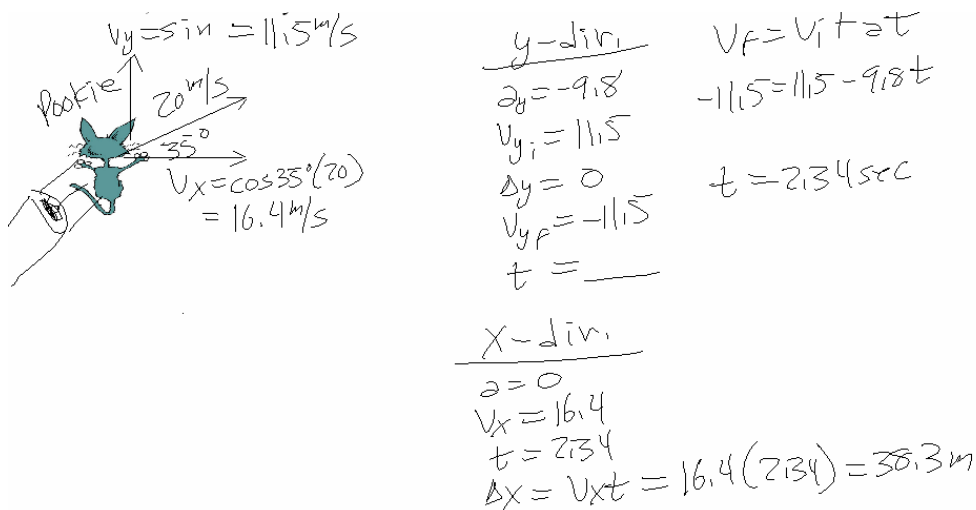
(No! Wait! There's still more!)

You might think that as a Physics teacher with a Masters degree and 2 guitars, that I'd be smarter than trying to catch a talon-equipped, ferociously fearful flying feline. You would be, oh!, so wrong! I saved Pookie's life, but Pookie lands with all claws out!!! Screaming in pain I forget my mother's vertebral virulence and I run at 60° to the fence toward the gate of the dog park, cat still attached to my face, of course. I was standing still beforehand and I accelerate at 1 m/s^2 for 4 seconds to reach the gate. A now interested pack of dogs, noticing the possibility of an easy, mid-day snack of "Kitty face shreds", run along the fence to intercept the two of us. How far do they run along the fence to get to the gate before us?

$$a = 1 \text{ m/s}^2$$
$$t = 4 \text{ sec}$$
$$v_i = 0$$
$$\Delta x = \underline{\quad}$$

$$\Delta x = v_i t + \tfrac{1}{2} a t^2$$
$$\Delta x = 0 + \tfrac{1}{2}(1)(16)$$
$$\Delta x = 8 \text{ m}$$

this is the hypotenuse (at 60°)

Pookie + me   8 m   dogs

60°

$$\text{Dogs} = \sin 60° (8m) = 6.9 m$$

Post log: Physics date 12.34.9.2

Pookie and I are now close friends, until, of course, the HMO agrees to have us separated. Pookie's proximity makes grading papers a bit difficult, but she's a great disciplinarian with the IPC students! And what a wonderful way to attract wayward women!

I hope you, too, learned a lot from my vexing vector adventure. Just remember to resolve your vectors, keep x and y straight, and don't interfere with flying felines!

Happy Tangents to You!,
Mr. Murray