Key

1. 100
2. 1,076
3. 8
4. 108
5. $18\sqrt{14}$
6. 9
7. 64.95
8. 2,310

   There are 15C6 = 5,005 ways to get from the origin to (9,6). Some of these paths pass through (4,3) and others pass through (5,5), and some pass through both. We subtract the ways which pass through (5,5) and the ways that pass through (4,3) then add back the ways that pass through both to avoid subtracting them twice. There are (7C3)(8C3) = 35 x 56 = 1,960 paths which pass through (4,3) and there are (10C5)(5C1) = 252 x 5 = 1,260 ways to get there through (5,5) but there are (7C3)(3C1)(5C1) = 35 x 3 x 5 = 525 ways which pass through both points. 5,005 – 1,960 – 1,260 + 525 = 2,310 ways to get there.

9. $25\sqrt{15}$
10. (53, 29, 6)