Physics

Vector Sheet

Directions: make no marks on this sheet. Do these problems **on your own paper** and check your answer. The answers are on the left side.

**Part 1 - Convert these Angle-Magnitude vectors to Vector-Component vectors.**

|  |  |
| --- | --- |
| 1) 13 m/s**x** + 7.3m/s**y**2) 230m**x** + 190m**y**3) 18.6m/s**x** -26.6m/s**y**4) -73.8m/s**x** - 94.6 m/s**y**5) -126m**x** + 40.8m**y**6) -140m/s/s**x** - 80.m/s/s**y** | 5) 132 m18.0o40o2) 300. m30.o6) 160 m/s/s38o4) 120.0 m/s m/s29o1) 15 m/s35o3) 32.5 m/s |

**Part 2 - Convert these Vector-Component vectors into Angle-Magnitude vectors. Find the angle they make with the x axis**

|  |  |  |
| --- | --- | --- |
| 7) 7.8 m, up and right 50.o­ above the x axis8) 7.62 m, left and up 66.8o above the x axis | 7. 5.0 m**x** + 6.0 m**y** | 8. -3.00 m**x** + 7.00 m**y** |
| 9) 5.3 m, left and down 37.3o below the x axis10) 5.81 m, right and down 78.9o below the x axis | 9. -4.2 m**x** -3.2 m**y** | 10. 1.12 m**x** - 5.70 m**y** |

**Part 3 - Add or Subtract these Vector component vectors from Part 2**

|  |  |  |
| --- | --- | --- |
| 11) 2.0m**x** + 13.0m**y**12) 8.0m**x** - 1.0m**y** | 11. #7 + #8 | 12. #7 - #8 |
| 13) -1.2m**x** - 10.2m**y**14) -3.1m**x** - 8.9m**y** | 13. #9 - #8 | 14. #10 + #9 |

**Part 4 - Add these Angle-Magnitude vectors analytically, and express their sum as an Angle-Magnitude Vector.**

|  |  |
| --- | --- |
| 15. (Answer: 18m, right and a little down, 7.7o below the **x**-axis) | 16. (Answer: 44m, right and down, 31o below the **x**-axis) |