Physics 12: 2D Vectors

1. Find the x and y components of the following vectors:

a. 120N [32.0o S of E] b. 11.10m [19.0o above +x]

c. 65m/s [11o W of N] d. 1254km [63o below +x]

e. 0.677m/s2 [14o above –x]

2. Write the following vectors in standard notation.

a. dx=-22m dy=11m

b. vx=4.2m/s vy=6.3m/s

c. Fy=-139N Fx=222N

d. ax=0.75m/s2 left ay=1.25m/s2 up

e. (92, -140)m

f. 95N**x** + -44N**y**

3. Consider the following displacement vectors, then solve the questions below.

42m

29o

39m

36m

# A B C

a. **A+B** b. **B+A**

c. **A+C**  d. **B+C**

e. **A-B**  f. **B-A**

g. **B-C** h. **A-C**

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4. **F1**=99.6N [22.2o above –x] ; **F2**=-54.0N **x** ; **F3=**37.1N [73.2o above +x]

Find the sum of these 3 forces.

5. **vo**=12m/s [59o below +x], **v**=9.5m/s [13o below +x], t=0.74s

a. Find Δ**v**

b. Find (average velocity)

c. Find **d**

6. If **M**=220m [39o below –x], **B**=330m [67o above –x] and **T**=440m/s [51o below +x]

a. Find **M**+**B**

b. Find 4**M**+3**B**

c. Find 2**M-B**

d. Find **T**+**M**

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