

Vectors 1

- ① You can move a vector, but not change its length or direction.
- ② The sum of 2 or more vectors.
- ③ The resultant is the same no matter the order you add the vectors.
- ④ Scale: $\frac{30 \text{ m/s}}{15 \text{ mm}} = \frac{2 \text{ m/s}}{1 \text{ mm}}$

$$\therefore 1 \text{ mm} = 2 \text{ m/s}$$

A 10 mm arrow would represent 20 m/s.

- ⑤ Scale: $1 \text{ cm} = 5 \text{ km}$

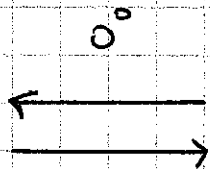
A 3 cm arrow would represent 15 km.

- ⑥ Largest: $3 \text{ m} + 4 \text{ m} = 7 \text{ m}$

$$\text{Smallest: } 4 \text{ m} - 3 \text{ m} = 1 \text{ m}$$

- ⑦ It increases.

e.g.



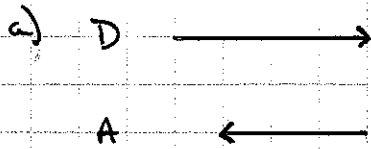
$$(+4) + (-4) = 0$$

180°

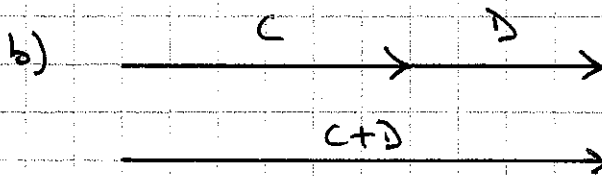


$$(+4) + (+4) = +8$$

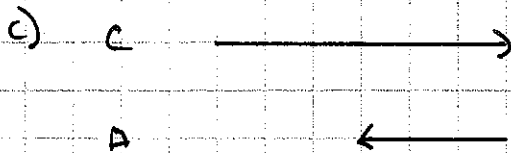
8)



$D+A \longrightarrow$ 1 unit [East]



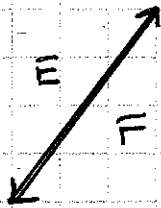
10 units [East]



$C+A \longrightarrow$

3 units [East]

d)



$$E + \bar{F} = 0$$

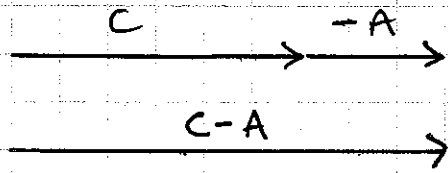
(they have the same length, but opposite directions)



$C+D+A \longrightarrow$

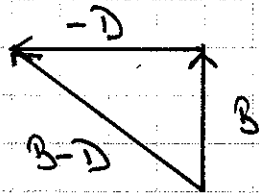
7 units [East]

9 a) $C - A = C + (-A)$



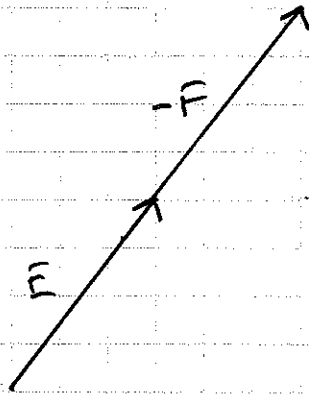
9 units [East]

b) $B - D = B + (-D)$



5 units [53° W of N]

c)



10 units [NE]