

Ans.

#13. a. $[-4000, 8000]$

b. 20, 40, 60

c. 1. $[20, 40] \cup [60, 80]$ 2. $[0, 20] \cup [40, 60]$

d. 1. $[0, 30] \cup [50, 80]$ 2. $[30, 50]$

e. 1. -4000 2. 8000

14. a. $[0, 10]$ The total time from start to finish to complete the flight.

b. $[-4, 5]$ The total range in height from lowest to highest in meters.

c. 4, 6 and 9. The points in the flight where the bird was at sea level (zero height)

d. 2 The starting height of the flight

e. $[0, 4] \cup [6, 9]$. The time during the flight where the bird was at or above sea level

$[4, 6]$. The time during the flight the bird was at or below sea level

f. $[0, 2] \cup [5, 7.5]$ The time during the flight the bird was flying upward

$[2.5, 7.5] \cup [7.5, 10]$ The time during the flight the bird was flying downward

g. 5 The maximum height above sea level the bird flew

-4 the minimum height the bird flew (the lowest point below sea level).