

## Tutorial Activity - June 2

Exercise 6.2  $\rightarrow$  6.18

Exercise 10.2  $\rightarrow$  5, 20 (bif)

- 6.2 (6)
- 6 professors
  - Each student gets a score from 0 to 100  $\rightarrow$  101 possible scores
  - So for each professor there are 101 unique scores a student can get

For 1 prof = 101 possible scores

For 6 profs =  $6 \times 101 = 606$  unique combinations

To guarantee that 2 students with the same prof got the same exam score, there must be at least 607 students.

- (18)
- |               |  |
|---------------|--|
| $1 + 15 = 16$ | 4 pairs that sum to 16 : $(1, 15), (3, 13), (5, 11), (7, 9)$ |
| $3 + 13 = 16$ |  |
| $5 + 11 = 16$ |  |
| $7 + 9 = 16$  |  |
- There are only 4 pairs, choosing 5 numbers means at least 2 numbers must come from the same pair.

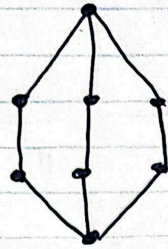
To guarantee that at least one pair sums to 16, 5 numbers must be selected

- 10.2 (5) : Sum of degrees =  $15 \times 5 = 75$   $\leftarrow$  contradiction  
The sum of degrees must be even

$\therefore$  no, this graph can't exist.



10.2 (20) b)



f)

