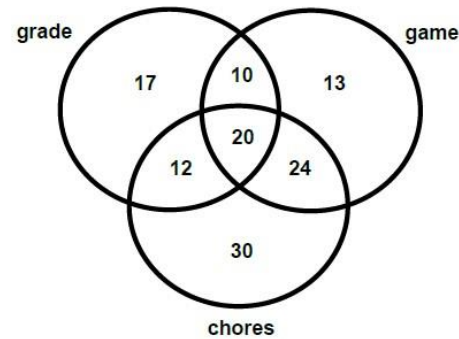


## Using a Venn Diagram to answer survey questions

One hundred thirty TCC faculty member were surveyed regarding their plans for the upcoming weekend. The results were as follows:

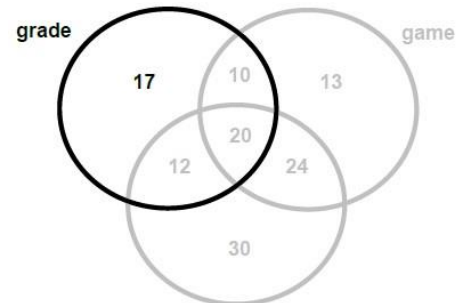
- 59 people plan to grade papers
- 67 plan to attend a football game
- 86 plan to do household chores
- 30 plant to grade papers and attend a football game
- 32 plan to grade papers and do household chores
- 44 plan to attend a football game and do household chores
- 20 plan to grade papers, attend a football game, and do household chores



How many planned only to grade papers?

The top left region is the only region inside the “grade” circle that does not overlap any other circle.

Answer: 17 faculty members plan to only grade papers.

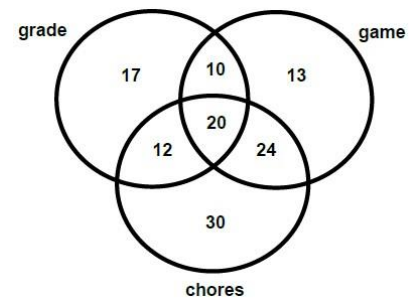


How many did not plan only to do any of these activities?

The problems states “one hundred thirty TCC faculty members were surveyed regarding their plans for the upcoming weekend. Add all of the numbers in the seven regions and subtract the total from 130.

$$130 - (17 + 30 + 13 + 12 + 20 + 24 + 30) = 4$$

Answer 4 faculty members plan to do none of these activities.

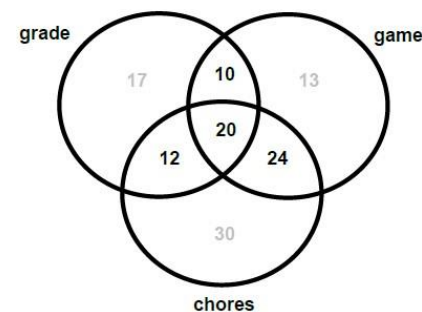


How many planned to do at least two of these activities?

At least 2 means greater than or equal to 2. In other words, either 2 or 3 activities planned. Add the number of the four central regions.

$$10 + 12 + 20 + 24 = 66$$

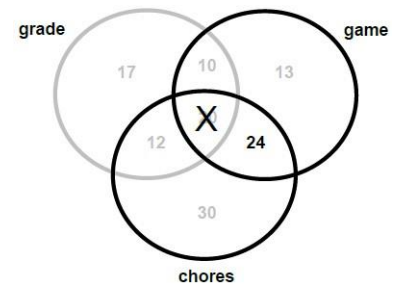
Answer: 66 faculty members plan to do at least two of these activities.



How many planned to attend a football game and did household chores, but did not have plan to grade papers?

The right central and the center regions represent the faculty who plan to attend a football game and do households chores. However the center region also lies inside the “grade” circle so it is excluded.

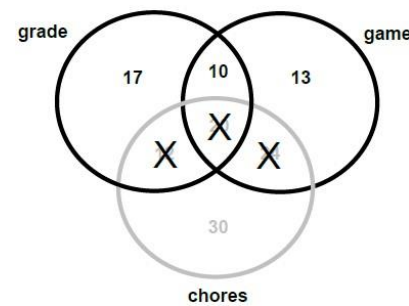
Answer: 24 faculty members plan to attend a football game and do household chores, but did not have plan to grade papers.



How many planned to attend a football game or grade papers but did not do household chores?

The top six regions represent the faculty members who plan to attend a football game or grade papers. However the three regions that also lie inside the “chores” circle must be excluded.  $17+10+13=40$

Answer: 40 faculty members planned to attend a football game or grade papers, but did not have plan to do household chores.



How many planned to do at most one of these activities?

At most one means less than or equal to one. In other words, either one or zero activities are planned. The top left and right and the bottom regions represent the faculty who plan to do just one of these activities. There are also 4 faculty member who plan to do none of these activities.  $17+13+30+4=64$

Answer: 64 faculty members planned to do at most one of these activities.

