Question 1
a) Mutually exclusive events
b) Non-mutually exclusive events
c) Mutually exclusive event
d) Mutually exclusive event
e) Non-mutually exclusive event
f) Non-mutually exclusive event
g) Mutually exclusive event
h) Mutually exclusive event.

Question 2.
Total 9 members
3 outfilders
4 infilders
1 pitcher
1 catcher

outfilders $\frac{3}{9}$ Infilders $\frac{4}{9}$

pitcher $\frac{1}{9}$ catcher $\frac{1}{9}$

P(catcher) $= \frac{1}{9}$

P(outfilder) $= \frac{3}{9} = \frac{1}{3}$

A position he does not like
P(Infilder or Pitcher)

$P\left(\frac{4}{9} + \frac{1}{9}\right)$

$\frac{5}{9}$

Question 3
28% two-door model
46% four-door model
19% minivan
4% of 4x4 vehicle.

a) P(4×4) 0.04

b) P(minivan)
P(0.28 + 0.46 + 0.04)
P = 0.78

c) P(2 door or 4 door)
P(0.28 + 0.46)
P = 0.78

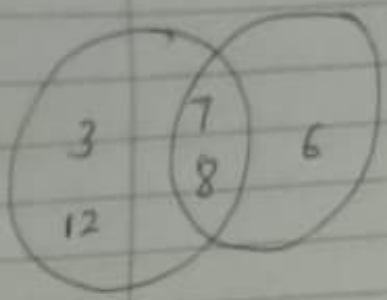
d) P(minivan or 4 by 4)
P(0.19 + 0.46)
P(0.65)
P = 0.65

Question 4
Months: July, August, March, D
Vaccation math (3, 7, 8, 12)
whole year (1 2 3 4 5 6 7 8 9 10 11 12

a) i) P(vacation month) (3 7 8 12)
$\frac{4}{12} = \frac{1}{3}$

ii) June, July, August (6 7 8)
$\frac{2}{12} + \frac{1}{12} = \frac{3}{12} = \frac{1}{4}$

b)



Question 5
Total 220
with electricity 80, 22 lakeshore
Total lake shore 52

a) P (lakeshore)
$\frac{52}{220} = \frac{13}{55}$

b) P (electricity)
$\frac{80}{220} = \frac{14}{111} = \frac{4}{11}$

c) P (lakeshore or electricity)
$P\left(\frac{13}{55} + \frac{4}{11}\right)$
$= \frac{3}{5}$

d) P (lakeshore. electricity')
$52 - 22 = 30$
$\frac{30}{220} = \frac{3}{22}$

Question 6
Total viewers 1000 viewers
Adult viewers 800. Children 200

$P(AV) \frac{4}{5}$ $P(CV) \frac{1}{5}$

$P(AV) \frac{5}{16}$ $P(CV) \frac{37}{50}$

$P(AV') \frac{11}{16}$ $P(CV') \frac{13}{50}$

a) $P\left(\frac{4}{5} \times \frac{11}{16}\right)$
$= \frac{11}{20}$

b) $P\left(\frac{1}{5} \times \frac{37}{20}\right)$
$= \frac{37}{250}$

c) $P\left(\frac{11}{20} + \frac{37}{250}\right)$
$\frac{349}{500}$
//

7.

a) $P(3 \text{ heads}) = 3 \text{ Hamsters}$.

$= \frac{3}{28} = \frac{1}{\quad}$

$= \frac{3}{28}$

b) $P(<2 \text{ heads}) = P(0 \text{ heads}) \text{ and } P(1 \text{ head})$

$= \frac{10}{28} + \frac{6}{28} = \frac{16}{28}$

$= \frac{4}{7}$

c) $P(1 \text{ head} \sim 2 \text{ heads}) = P(1 \text{ head}) + P(2 \text{ heads}) \cdot$ ~~P(...)~~

$= \frac{6}{28} + \frac{4}{28} = \frac{10}{28}$

$= \frac{5}{14}$

d. $P(0 \text{ head or more than 3 heads}) = P(0 \text{ head}) + P(\text{4 or more heads})$.

$= \frac{10}{28} + \frac{5}{28} = \frac{15}{28}$

11.

a) P(Haiña 1st & Aaron will be last)

$6! = 720$.

Total ways to line up Haiña first or Aaron last is;

$5040 + 5040 - 720 = 9,360$ ways.

Total number of ways to arrange 8 people

$8! = 40,320$

(2)

P (Hania first + Aaron last)

$= \frac{9,360}{40,320}$

$= \underline{\underline{0.232}}$

b. P (Hania first + Aaron not last).

Hania first (1 way).

Aaron anywhere but not last (6 ways).

6 people (6! = 720 ways.

$1 \times 6 \times 720 = 4,320$ ways

P (Hania first but Aaron NOT last)

$= \frac{4320}{40,320}$

$= \underline{\underline{0.107}}$

13.

(a). Data management = 28

Calculus = 40

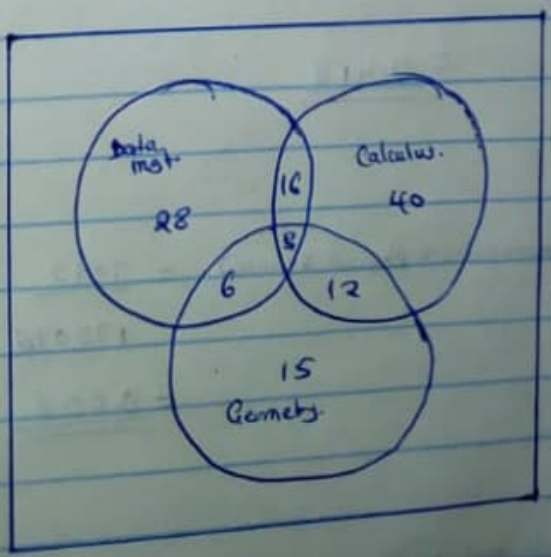
geometry. = 15.

Data mgt + Calculus = 16.

Calculus + Geometry = 12

Geometry + Data mgt = 6.

All = 3.



b) $P(\text{data mgt or calculus}) = P(\text{data mgt}) + P(\text{calculus}) - P(\text{data mgt and calculus})$

$= \frac{28}{120} + \frac{40}{120} - \frac{19}{120}$

$= \frac{68}{120} - \frac{19}{120}$

$= \frac{49}{120}$

c) $P(\text{one of the 3 courses}) = P(\text{data mgt}) + P(\text{calculus}) + P(\text{geometry})$

$= \frac{28}{120} + \frac{40}{120} + \frac{15}{120}$

$= \frac{83}{120}$

16.

a)

(i) $P(\text{male}) = \frac{71,949}{172,076}$

$= 0.418$

(ii) $P(\text{mathematics and physical sciences}) = \frac{9992}{172,076}$

$= 0.058$

iii) $P(\text{male graduates in maths and physical sciences}) = \frac{6278}{172,076}$

$= 0.04$

c) $P(\text{a male or a graduate in maths a physical sciences}) = P(\text{male}) + P(\text{graduate in maths a physical sciences})$

$= 0.418 + 0.058$

$= \underline{0.476.}$

b. $P(\text{maths a physical science male}) = \frac{6726}{9786.}$

$= \underline{0.687}$

c) $P(\text{male})$ 1994 - 6997
1995 - 6941
1996 - 6726. } 20664.

Total no. = 29,216.

$= \frac{20,664}{29,216.}$

$= \underline{0.707.}$

d) No. Because for there to be a graduate in the course there has to be a male and viceversa.