

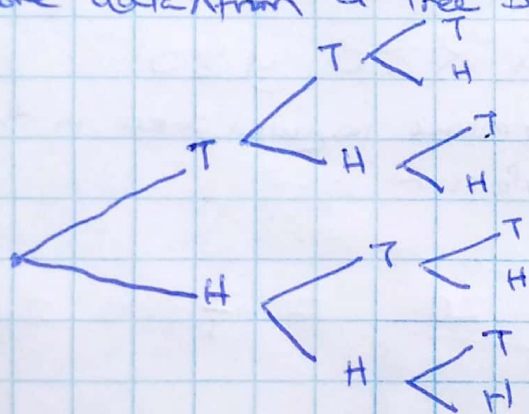
14) Coin flip $X = 1$ if heads, otherwise zero

(a) $P(X=x)$

$$F(a) = P(X \leq a) = \sum_{x \leq a} P(X)$$

Elementary event	value of x
TTT	0
TTH	1
THT	1
HTT	1
T HH	2
HTH	2
HHT	2
HHH	3

is
Above data from a tree Diagram



Therefore probability Distribution for the heads occurring in the 3 tosses

X	$P(X)$	$F(X)$
0	$\frac{1}{8}$	$\frac{1}{8}$
1	$\frac{3}{8}$	$\frac{4}{8}$
2	$\frac{3}{8}$	$\frac{7}{8}$
3	$\frac{1}{8}$	1

⑥ Expected no. of heads
 Expected probability of getting head $E(P(x)) = P_1 + P_2 + P_3 =$
 $\frac{3}{8} + \frac{3}{8} + \frac{1}{8} = \frac{7}{8}$

Out of 8 possible outcomes $\frac{7}{8}$ will be heads
 no. of heads $= \frac{7}{8} \times 8 = 7$ heads

⑦ $3x + 4y = 24 \Rightarrow 4y = 24 - 3x \Rightarrow y = 6 - \frac{3}{4}x$

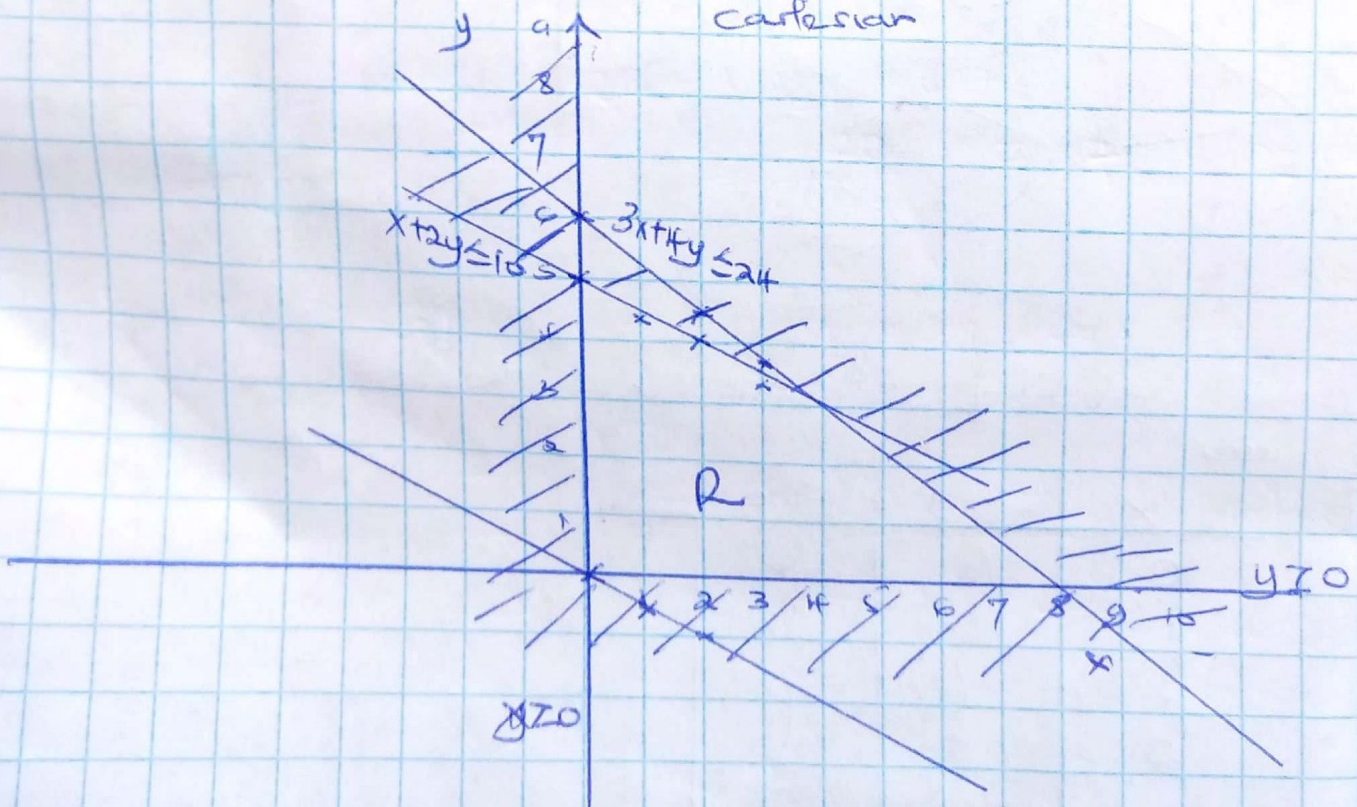
x	0	2	3
y	6	4.5	3.75

$x + 2y \leq 10 \Rightarrow 2y = 10 - x$
 $\Rightarrow y = 5 - \frac{x}{2}$

x	0	1	2	3
y	5	4.5	4	3.5

and $x \geq 0$ $y \geq 0$

This means required area in the positive cartesian



$$P = 9x + 16y$$

$$\begin{array}{c|c|c} x & 0 & 1 \\ \hline y & 0 & 1 \\ \hline p & 0 & 16 \end{array}$$

$$16y = P - 9x$$

$$y = P/16 - 9/16x$$

$$\begin{array}{c|c|c|c} p & 0 & 1 & 2 \\ \hline x & 0 & 1 & 2 \\ \hline y & 0 & -8/16 & -16/16 \end{array}$$

No solution since its line is out of Region R.

$$\begin{aligned} \textcircled{1} \quad I &= P \times t \\ &= 1500 \times \frac{7}{100} \times 10 = 1050 \end{aligned}$$

$$\textcircled{2} \quad A = P + P \times t = 1500 + 1050 = 2550$$

$\textcircled{3}$ Per year = 4 quarters
For 3 years = 12 quarters

$$A = P(1 + r/m)^{mt}$$

$$P = 15000 \quad m = 4$$

$$r = 3\%$$

$$t = 10$$

$$A = 15000 \left(1 + \frac{0.03}{4}\right)^{4(10)}$$

$$= 15000 (1.348) = 20225.30$$