

$$\text{No. of diagonals} = \frac{n(n-3)}{2}$$

9+2

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DATE / /

PAGE / /

9¹ → 9
9² → 1

(2019) 2019

9 dr

Ques: Ram \rightarrow 40 year
Kanim \rightarrow 64

$n \rightarrow 3: 5$

$$\frac{40-x}{64-x} = \frac{3}{5}$$

$$5(40-x) = 3(64-x)$$

$$200 - 5x = 192 - 3x$$

$$8 = 2x$$

n=4

Q. 11, 23, 47, 83, 131 \dots x

$$\begin{array}{r} 47 \\ 23 \\ \hline 24 \end{array} \quad \begin{array}{r} 83 \\ 47 \\ \hline 36 \end{array}$$

$$11 \times 2 + 1 = 23$$

$$12 \quad 24 \quad 36 \quad 48 \quad 60$$

$$23 \times 2 + 1 = 47$$

$$131$$

$$47 \times 2 + 1 = 85$$

$$60$$

$$\underline{191}$$

AP \rightarrow ~~100000~~ 20000 ~~extent~~

AP \rightarrow $\boxed{n^{\text{th}} \rightarrow a + (n-1)d}$

$$\text{AP} \rightarrow 8^{\text{th}} = 39$$

$$39 = a + (8-1)xd$$

$$12^{\text{th}} = 59$$

$$59 = a + (12-1)d$$

1st

$$39 = a + 7d$$

$$59 = a + 11d$$

$$39 = a + 7 \times 5$$

$$f_{20} = f_4d$$

$$a = 39 - 35$$

$$= 4$$

$$\underline{d=5}$$

Q

680

$$R \rightarrow x$$

$$Q \rightarrow \frac{x}{4}$$

$$P \rightarrow \frac{x}{3} \quad x \quad \frac{x}{4}$$

620

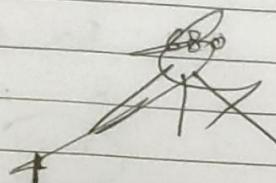
P Q R

10

$$\Rightarrow \frac{n}{6}$$

$$\frac{t}{a} \frac{c}{d}$$

$$\frac{e}{f} \frac{g}{h}$$

P \Rightarrow 

10

15

12

P \Rightarrow ~~10~~

$$\frac{n}{6}$$

$$\frac{x+n}{6} + \frac{n}{6}$$

$$24x + 6n + 4n$$

P \rightarrow

$$\frac{n}{6}$$

X 680

$$\frac{34x}{24}$$

24

$$\frac{34x}{24}$$

$$\frac{n}{6} \times \frac{14}{34x} \times \frac{680}{n} \Rightarrow$$

40

80 R

$$\frac{x}{6} \Rightarrow 80$$

$$x = 480$$

Ques: Speed \rightarrow 120 km/hr. $t_1 = \frac{d}{120}$

Ruk \rightarrow 100 km/hr $t_2 = \frac{d}{100}$

Distance \rightarrow 20 km.

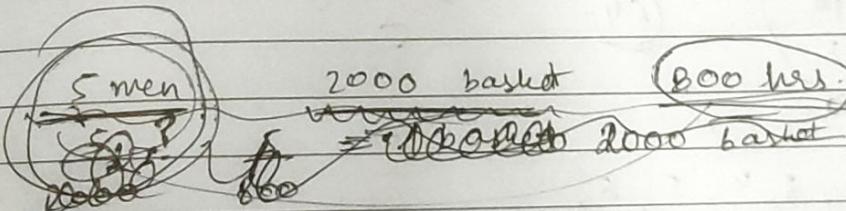
Speed \rightarrow 100 km/hr.

$$T = \frac{d}{s} \Rightarrow \frac{20}{100} \text{ hr}$$

$$\frac{20}{100} = \frac{1}{5} \times 60 \text{ min}$$

~~1 hr = 60 min~~

Ques: 5 men 2000 basket 8 days 10 hr/day.



$$\frac{5}{800} \times \frac{2000}{1 \text{ hr}} = \frac{1}{160} \text{ hr}$$

$$\frac{5}{800} \times \frac{1}{1 \text{ hr}} = ?$$

$$800 \times 2000$$

$$\frac{5 \times 4000}{800 \times 2000} = \frac{1}{160} \text{ hr}$$

$$\frac{5 \times \frac{2}{4000 \times 600}}{800 \times 2000} = \frac{4000}{800 \times 600} \text{ hr}$$

$$\cancel{\frac{800 \times 2000}{800 \times 600}}$$

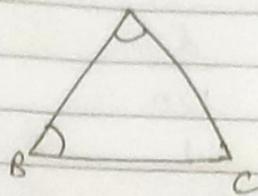
*10

$$1980 \rightarrow 2^2 \times 3^2 \times 5^1 \times 11^1$$

$$(2+1)(2+1)(1+1)(1+1) \Rightarrow 36$$

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PAGE

1



$$A + B + C = 180^\circ$$

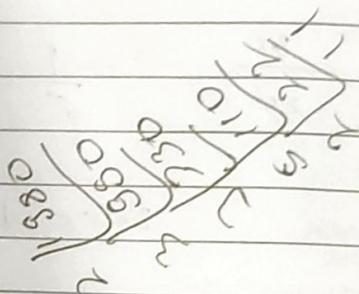
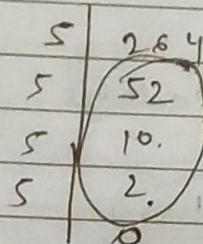
$$A + B \rightarrow BO$$

$$\underline{B} + C = 120^\circ$$

60°

Ques.

2841



Ques:

1980-1 1, 2, 3, 4, 5, 6,

10 → 1, 2, 5, 10

15 → 1, 3,

2		1980
11		990
9	85	90
10		
50		810
2		X

Dues:

$$\textcircled{40} \log_4 64$$

$$\log_4 64 = \textcircled{3}$$

$$3 \times 40 \quad 4^x = 64 \\ \Rightarrow 120$$

$$x = 3$$

Dues:

Today → wed

60

wed - 0

$$\textcircled{560} \quad \frac{-}{7} = 80$$

thurs → 1

$$\textcircled{560} \quad \frac{-}{7} = 80$$

Thurs

$$\textcircled{65} \quad \frac{-}{7} = 9$$

②

Thurs - 0

Sun → 4,

Friday → 1

Mon → 5

Satur - 2

Tue → 6

wed → 0

Thurs - 1

Friday - 2

Sat - 3

2nd Oct 1869

~~89~~

~~02~~

00

02

~~PK~~~~00~~

$$4) \overline{69} \quad \textcircled{17}$$

$$\underline{4} \quad \underline{29}$$

~~80~~~~29~~

11

$$7) \overline{80} \quad \textcircled{3}$$

$$16 \rightarrow \textcircled{6} \quad 4 \quad 0$$

$$1800 \rightarrow 2 \quad 3$$

$$17 \quad 0 \quad 6$$

$$1800 \rightarrow 2 \quad 3$$

$$17 \quad 0 \quad 6$$

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$$17 \quad 0 \quad 6$$

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$$17 \quad 0 \quad 6$$

$$1800 \rightarrow 2 \quad 3$$

$$17 \quad 0 \quad 6$$

$$1800 \rightarrow 2 \quad 3$$

$$17 \quad 0 \quad 6$$

17

2nd Oct 1869

4 J 69

$$\begin{array}{r}
 1 \\
 89 \\
 02 \\
 00 \\
 02 \\
 17 \\
 \hline
 90
 \end{array}
 \qquad
 \begin{array}{r}
 4 \\
 29 \\
 28 \\
 \hline
 1
 \end{array}
 \qquad
 \begin{array}{r}
 12 \\
 7) 90 \\
 7 \\
 \hline
 20 \\
 14 \\
 \hline
 6
 \end{array}$$

Ques:

$$\begin{array}{r}
 (20) \times 800 \\
 (120)
 \end{array}
 \qquad
 \left(\frac{100}{100 - 20} \right) \times 800$$

Ques: 2

$$\begin{array}{l}
 \text{SP} \rightarrow 800 \\
 \text{Loss} \rightarrow 20\%
 \end{array}
 \qquad
 \begin{array}{l}
 CP = 1000 \\
 \text{Gain} \rightarrow 40\% \\
 SP \Rightarrow ?
 \end{array}$$

$$\begin{array}{r}
 100 \\
 80 \\
 \hline
 1000
 \end{array}$$

$$\begin{array}{r}
 (100 + 40) \times 100 \\
 100 \\
 140 \times 20 \\
 1400
 \end{array}$$

$$P.Y. = \frac{P}{CP} \times 100$$

$$V.Y. = \frac{L}{CP} \times 100$$

$$SP = \left(\frac{100 + P.Y.}{100} \right) \times CP$$

$$CP = \left(\frac{100}{100 + P.Y.} \right) \times SP$$

$$S.I \rightarrow P \times r \times t$$

100

$$P = 60000$$

$$r = 20$$

$$t = 2 \text{ years}$$

$$C.I = P \left(1 + \frac{r}{100} \right)^t - P$$

$$60000 \times 20 \times 2$$

100

24000

$$86400$$

$$24000$$

$$\underline{62400}$$

$$60000 \left(1 + \frac{20}{100} \right)^2$$

$$60000 \left(\frac{120}{100} \right)^2$$

$$60000 \times 120 \times 120$$

$$(10-1) \times \frac{9}{15} =$$

$$\frac{26}{25} \times \frac{16}{15} =$$

$$\begin{aligned} & \text{total - total - total - total - total - total} \\ & \text{total + total} \end{aligned}$$

$$26400$$

$$24000$$

$$2400$$



$$\textcircled{56}$$



$$\boxed{n} - \boxed{n(n-3)}$$

Ques: 6 coins

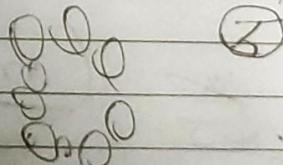
4 Heads

$$\begin{array}{r} 15 \\ 6 \times 2 \\ \hline 12 \end{array}$$

$$\textcircled{264}$$

Total

$$\textcircled{2^6}$$



$$\begin{array}{r} 9 \\ 6 \times 3 \\ \hline 18 \end{array}$$

$$\textcircled{47}$$

$$\textcircled{64}$$

$$\frac{1}{64}$$

$$\textcircled{1}$$

$$10 \times 10$$

$$\begin{array}{r} 81 \\ 3 \times 27 \\ \hline 81 \end{array} - 8(8-3)$$

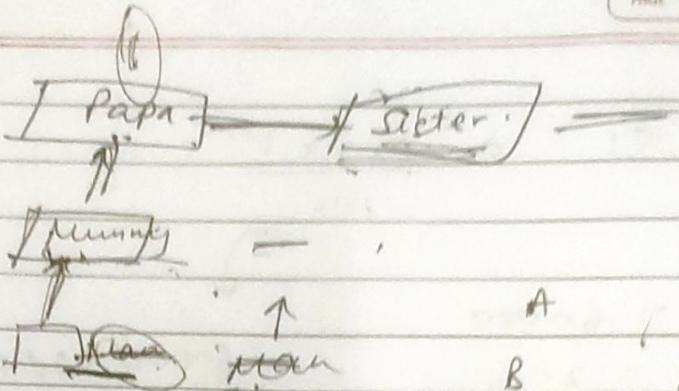
$$= 40$$

$$8 \times 7 \times 6$$

$$3 \times 2$$

$$\textcircled{120}$$

Due



Due:

HOME → 41

FACE → 27

BOOK →

$$8 + 15 + 13 + 5 \Rightarrow 41$$

$$4 + 8 + 15 + 15 + 13$$

\uparrow \uparrow $\boxed{13}$

(55)

Due:

256, 484, 676, 841

O (15)
P (16)

Q (17)

Due:

1, 2, 4, 8, 16 → 30

R (18)

S (19)

T (20)

U (21)

V (22)

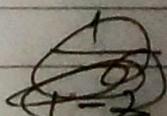
W (23)

X (24)

Y (25)

Z (26)

Nam → a
ar
ar^n-1



1, 2, 4, 8, . . .

(30)

$$\text{Sum} \Rightarrow \frac{a(1 - r^n)}{1 - r}$$

$$N \Rightarrow 30$$

(2)

$$\text{Sum} \Rightarrow 1 \times \frac{(1 - q^{30})}{1 - q}$$

$$q^{20} \rightarrow$$

Ques: No. of boys $\Rightarrow n$
girls $\Rightarrow n-1$

$$n(n-1) = 272$$

$$\begin{array}{r|rr} 2 & 272 \\ 2 & 136 \\ 2 & 68 \\ 2 & 34 \\ 17 & 17 \end{array}$$

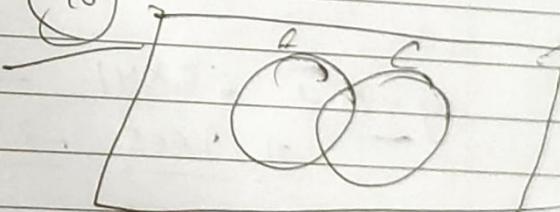
$$x^2 - x - 272 = 0$$

$$x^2 - 17x + 16x - 272 = 0$$

$$x(x-17) + 16(x-17) = 0$$

$$x = 17$$

(16)



Only in Football $\Rightarrow 40$

Cricket $\Rightarrow 50$

~~Only in Football and Cricket $\Rightarrow 20$~~ FNC = 20

$$FNC = 10$$

$$A \cap B = A + B - A \cup B$$

$$A + B + C = (A \cup B \cup C)$$

$$A + B + C = 0$$

Ave. = Total runs
Innings

$$40 \rightarrow 62 \text{ runs}$$

$$41 \rightarrow 65 \text{ runs} \rightarrow y \text{ runs}$$

+ x

$$\frac{x}{40} = 62$$

$$x = 62 \times 40 \rightarrow 40$$

$$65 = \frac{y}{41}$$

$$y - x$$

$$y \rightarrow 65 \times 41 \rightarrow 2$$

$$y - x \rightarrow 65 \times 41 - 62 \times 40$$

$$2865 - 2480$$

$$165$$

$$8P = 12Q = 6R \quad 432$$

$$\frac{24}{8} : \frac{24}{12} : \frac{24}{6} \rightarrow 3 : 2 : 4$$

$$3n : 2n : 4n$$

432

$$P \rightarrow \frac{3x}{96} \times \frac{48}{432} \rightarrow 136$$

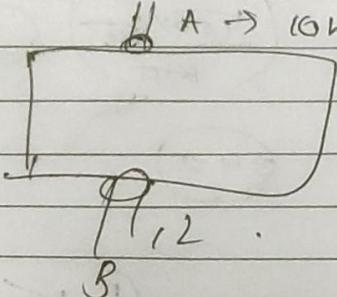
Ques: let total Paraff be n .

y

$$\begin{array}{r} 2n + 2y \\ \hline 2n + 4y = 80 \\ - \\ \hline 4y = 12 \\ \hline y = 12 \end{array}$$

$$\begin{array}{r} 80 \\ 56 \\ \hline 24 \\ \hline 28 - 12 \\ \hline 16 \\ \hline 26 - 12 \\ \hline 14 \\ \hline 16 \end{array}$$

Ques:



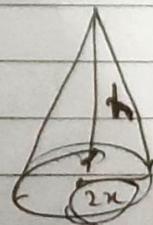
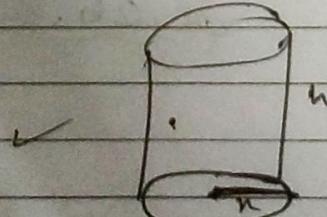
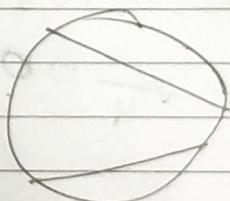
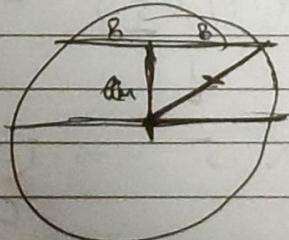
$$\frac{1}{10} - \frac{1}{12} = \frac{1}{120}$$

60

$$\sqrt{6^2 + 8^2}$$

$$\Rightarrow \sqrt{36 + 64}$$

$$\Rightarrow \sqrt{100} \Rightarrow 10\text{cm}$$



$\pi r^2 h$

$$\frac{1}{3} \pi r^2 h$$

$$J \quad 3:4$$

Ques. A \rightarrow 20Y.

B → 25 y.

C → 30%

$\Delta \rightarrow 25y$

400

$$\frac{2x}{4} \quad \checkmark$$

~~2828~~

400 x 20 or 80

$$\begin{array}{r} \cancel{2} \cancel{0} \cancel{1} \cancel{8} \cancel{4} \cancel{0} \\ \times \cancel{1} \cancel{0} \cancel{0} \cancel{0} \\ \hline \cancel{1} \cancel{0} \cancel{0} \end{array} \quad \begin{array}{r} 100 \\ \frac{400 \times 25}{100} \\ \hline 100 \end{array}$$

(200) 200

$$\begin{array}{r} 400 \times 30 \\ \hline 120 - 80 \\ \hline 240 \end{array}$$

$$\text{Area} = \pi r^2$$

~~80 ft~~ $\Rightarrow \pi(r^2)$

① ✓

$$\cancel{\text{Ques}} \quad \begin{array}{r} 132 \\ \cancel{(184)} \times \cancel{(155)} \\ \hline \end{array}$$

~~Duey~~ ~~2/25~~ : 01, 06.

16, 18

$$\frac{n}{n+2} \quad \frac{n+4}{n}$$

$$\cancel{2n + 2n + 1/2} + \cancel{2n + 1} + \cancel{2n/6} + \cancel{2n + 8} + \cancel{(2n + 10)} = 105$$

$$12n + 30 = 630$$

2n+10

$$2x \leq 0 + 10$$

$$12n = 600$$
$$\underline{\underline{n = 50}}$$

you

Even $\rightarrow 2n + 2n + 2$
 Odd $\rightarrow 2n+1, 2n+3, 2n+5$

Ques $551 \rightarrow 800$.

$$\begin{array}{r} 55 \times 800 \\ \hline 110 \end{array}$$

$$\begin{array}{r} 55 \times 8 \\ \hline 440 \end{array}$$

$$\begin{array}{r} 3114 \\ 151508 \\ \hline 100 \end{array}$$

Ques $a - b = 91$

$$\frac{a}{b} = \frac{13}{10}$$

$$\text{Cola } a = 23b$$

$$\frac{23b}{10} - \frac{b}{1} = 91$$

$$\begin{array}{r} a - b = 91 \\ a \quad 91 + 20 \\ \hline \end{array}$$

$$\frac{23b}{10} - \frac{b}{1} = 91$$

$$\begin{array}{r} 7 \\ 136 = 91 \times 10 \\ b = 70 \end{array}$$

Ques $C \rightarrow x$

B $\rightarrow 2x$

A $\rightarrow 2x + 2$

$$5x + 2 = 2x$$

$$5x = 25$$

$$\boxed{x = 5}$$

(b)

Q COLLEGE

$$\begin{array}{r} 71 \\ \hline 21 \end{array} \rightarrow \frac{7 \times 6 \times 5 \times 4 \times 3}{2 \times 5}$$

$$\begin{array}{r} 18 \times 7 \\ \hline 126 \end{array}$$

Q $40 \rightarrow 20 \text{ days}$.

40 men $\rightarrow 20$

$$1 \rightarrow \frac{20}{40}$$

1 man \rightarrow 20

$$50 \rightarrow \frac{50}{20} \times \frac{50}{20}$$

~~20~~

$$\begin{array}{r} 50 \\ \hline 20 \times 20 \end{array} \rightarrow \frac{1}{25}$$

40 men \rightarrow 20 days

40 men (1 day) $\rightarrow \frac{1}{20}$

1 man $\rightarrow \frac{1}{20 \times 40}$

50 $\rightarrow \frac{1}{\frac{20 \times 40}{50}} = \frac{1}{16}$

No $\rightarrow 16$

Q \rightarrow 60m \rightarrow 90 m \rightarrow 60m
 $\frac{120+90}{2} = 105$ m \rightarrow 210
Speed = $\frac{105}{16}$ m/s

90 m \rightarrow 60m
 $\frac{150}{10} = 15$ m/s

dr

250000 \rightarrow A \rightarrow B \rightarrow C
100m \rightarrow D \rightarrow E \rightarrow F

Ques: $(CH =) 48\%$
 $HCR \Rightarrow 160$

480

10

Actual

$$\frac{4800 \times 160}{480} \Rightarrow 1600$$

Ques: 100

(160)

Ques: $P_1 \rightarrow x$ (old)
 $P_2 \rightarrow x - 20$ (young)

5 years ago

 $x - 5 =$ $x - 25$

~~$(x - 25) \times 5 = (x - 5) \times 10$~~

$$(x - 25) \times 5 = x - 5$$

$$5x - 125 = x - 5$$

$$4x = 120$$

$$x = 30$$

Ques: CP of 12 pencils = SP of 10 pencils.

$$12 \rightarrow x \quad . \quad 10 \rightarrow n$$

$$1 \rightarrow \frac{x}{12} \quad \Rightarrow \quad 1 \rightarrow \frac{n}{10} \quad CP = \cancel{120}$$

$$CP = \left(\frac{100}{100+P} \right) \times SP$$

$$\frac{x}{12} = \left(\frac{100}{100+P} \right) \times \frac{x}{10}$$

$$(100+P)10 = 1200$$

$$1000 + 10P = 1200$$

$$10P = 200$$

$$P = 20\%$$

$$8 \begin{array}{r} 9 \\ \times 5 \\ \hline 45 \end{array} \quad 7 \begin{array}{r} 4 \\ \times 3 \\ \hline 12 \end{array} \quad \begin{array}{r} 71 \\ \times 3 \\ \hline 213 \end{array}$$

(35)

8/ 10 Nov 1997

$$4 \overline{) 97}$$

$$\begin{array}{r} 8 \\ 17 \\ \hline 16 \\ \hline 1 \end{array}$$

97
00

08

$$\begin{array}{r} 10 \\ 24 \\ \hline 4 \end{array}$$

$$\log_e \left(\frac{1296}{216} \right)$$

$$\log_e 1296$$

$$\log_e \left(\frac{1296}{216} \right)$$

$$\log_6 216 = y$$

$$(6)^y = 216$$

$$\begin{array}{r} 4 \\ 3 \end{array}$$

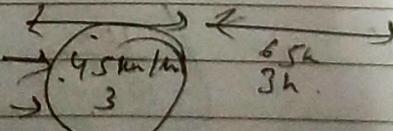
$$\begin{array}{r} 9 \\ 1 \end{array}$$

$$6^y = 216$$

Ques.

$$\text{Avg Speed} = \frac{\text{Total dist}}{\text{Total time}}$$

~~25~~



$$A = 45 \times 3 \quad B = 65 \times 3$$

$$\frac{45 \times 3 + 65 \times 3}{6}$$

$$a + (n-1)d$$

$$\text{Sum} \rightarrow \frac{n}{2} [2a + (n-1)d]$$

DATE	1/1
PAGE	73

$$1 + 3 + 5 + 7 + \dots - 40$$

L = 20

$$\frac{20}{2} [2 \times 1 + (20-1)2]$$

$$= 10(2 + 38)$$

400

400 20

$$SI = \frac{90\% \times 6 \times 3}{100}$$

$$540 \times 3 = 1620$$

$$A \rightarrow 12$$

$$B \rightarrow 15$$

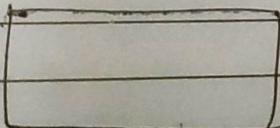
$$12 + 1$$

$$\frac{15 + 18}{12 \times 15}$$

$$4.$$

$$\frac{12 \times 18}{27 \times 9} = \frac{2}{3}$$

$$P = \frac{2}{3}$$



$$b + \frac{20b}{100}$$

~~16~~

$$\frac{b + 20b}{100} \times b + \frac{20b}{100}$$

$$\frac{12.6b}{100} \times \frac{12.6b}{100}$$

$$\frac{144}{100}$$

$$6 \times b$$

$$\Rightarrow x^2 + 2x - 15 = 0$$

$$3 \mid 15$$

$$x^2 + 5x - 3x - 15 = 0$$

$$5 \mid 25$$