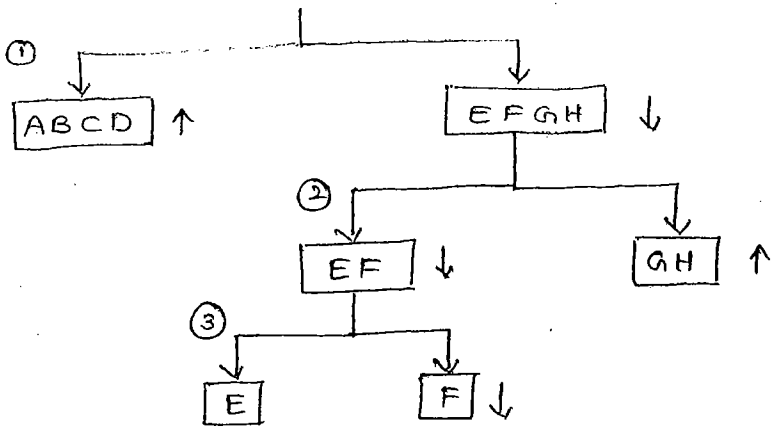
LOGICAL PUZZLES

P.9 No:- 35

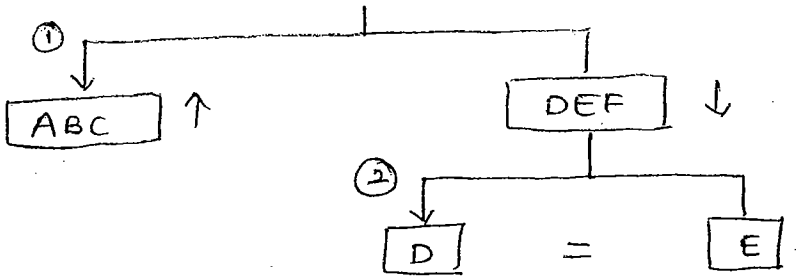
1. A B C D E F G H



∴ 3 times weighing

Another way let us pickup 6 bags among 8 bags and weighing it

A B C D E F



∴ Both are equal, the heavier bag is F

∴ In this method two times weighing.

∴ The minimum number of weighing required to identify the heavier bag is 2

2. $x+y=14 \rightarrow ① \times 10$

$20x+10y=230 \rightarrow ②$

$10x+10y=140$

$10x=90$

$x=9$

$9+y=14$

$\boxed{y=5}$

6. Given 100 wines, succesfully delievered for each glass = 3 ps

$100 \times 3 = 300$ paise $= 3$ Rs.

Rs. 3 — Rs. 2·40

60 paise

$G+B=100 \rightarrow ① \times 3$

$3G+3B=300$

$3G-9B=240 \rightarrow ②$

$12B=60$

$B=5$

∴ Broken glasses $= 5$

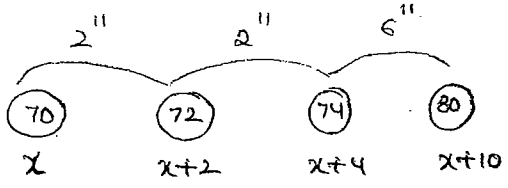
5×9 paise $= 45$ paise but there are 60 paise

∴ The remaining 15 paise (3×5 ps glasses) are not given because if he succesfully delieved the glass that amount will be counted. He is broken so we reduced 15 paise.

3. Avg. height $= 74''$

$$74 = \frac{x+x+2+x+4+x+10}{4}$$

$x = 70$



5. Upside down = Mirror Image + water Image

0 1 6 8 9 (original image)

↓ ↓ ↓ ↓ ↓

0 1 9 8 6 (upside down image)

a) 81 ⟶ $(9)^2$

(b) 101 ⟶ X

(c) 169 ⟶ $(13)^2$ ⟹ 691 = (X) not perfect square

(d) 196 ⟶ $(14)^2$

↓

961 ⟹ $(31)^2$

} It is a perfect square

∴ No. is '196'.

P.9 No:- 37

4. 0, 1, 6, 8, 9

check it options

(1 0 9 6 8) → actual number

(+)

7 8 6 3 3

(=)

(8 9 6 0 1) → upside down imag

P.9 No:- 36

5. a) 1+3+9+27 = 40 X

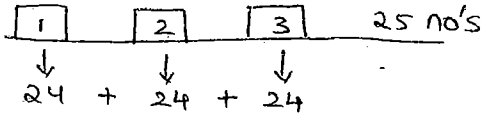
c) 1+3+9+27+81 = 121 ✓

121 pounds

1 pound

nearest

7.



24 × 25 = 600

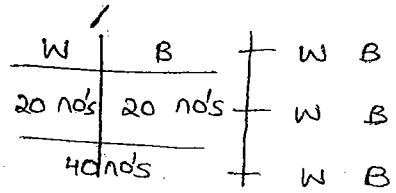
8. Check option (i) denominator is greater than '6' than numerator

9. Must no. of matching pairs = n+1

= 2+1

= 3

n = no. of colors



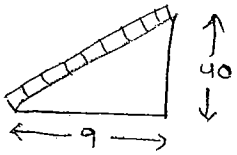
P.9 No:- 37

6. No. of pairs = n+1

= 3+1 = 4

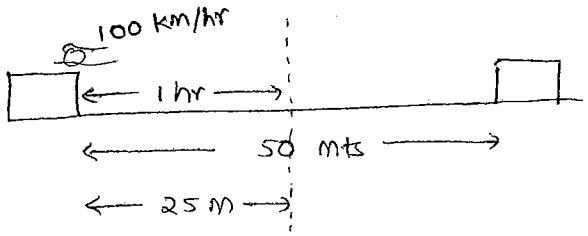
10.

$\sqrt{9^2+40^2}$ = 41 feets



1. To meet the trains 1 hour time required because the distance between 50 at centre point they meet.

For 1 hour time the bird can travel 100 km



2. 2000/- per year, 1000 per every half year

300 per year		100 each half year
1st year	1000 + 100 = 2000	1000 + 1100 = 2100
2nd year	1150 + 1150 = 2300	1200 + 1300 = 2500
3rd year	1300 + 1300 = 2600	1400 + 1500 = 2900

3. As many as you mean equal.

a) $\underline{4} \quad \underline{8}$

$+1 \quad -1$

$\underline{5} \neq \underline{7}$

b) $3 \quad 5$

$+1 \quad -1$

$4 \neq 4$

$\frac{-1}{2} \quad \frac{+1}{6}$

2×3

thrice

c) $5 \quad 7$

$+1 \quad -1$

$6 = 6$

$-1 \quad +1$

$4 \quad 8$

4×2

twice

5. C.P > S.P = Loss ; Loss = C.P − S.P

$$\text{Loss \%} = \frac{\text{C.P} - \text{S.P}}{\text{C.P}} \times 100$$

C.P < S.P = profit ; profit = S.P − C.P

$$\text{profit \%} = \frac{\text{S.P} - \text{C.P}}{\text{C.P}} \times 100$$

$$C.P = \frac{100}{100 - L\%} \times S.P$$

$$C.P = \frac{100}{100 + P\%} \times S.P$$

S.P = 600 % each

Total S.P = 600 + 600 = 1200

C.P = 750 + 500 = 1250

Loss = 50 %

1. $C.P = \frac{100}{100-20} \times 600 = 750$

2. $C.P = \frac{100}{100+20} \times 600 = 500$

7. 25 W, 20 D, 18 DE, 12 B.E

5W = 4D W : D = 4 : 5

12D = 9DE D : DE = 9 : 12 = 3 : 4

6DE = 8B DE : B = 8 : 6 = 4 : 3

W : D : DE : B

4 : 5

3 : 4

4 : 3

(4 x 3 x 4) : (5 x 3 x 4) : (5 x 4 x 4) : (5 x 4 x 3)

12 : 15 : 20 : 15 = W : D : DE : B

25W : 20D : 18DE : 12B = 25 x 12 : 20 x 15 : 18 x 20 : 12 x 15

= 5 : 5 : 6 : 3 ⟶ Total 19 parts

19 parts = 1330

1 part = 70

⇒ 5 x 70 : 5 x 70 : 6 x 70 : 3 x 70

⇒ 350 : 350 : 420 : 210

Short cut :-

25 = W

20 = D

A B

9. At present $x : y$

After T years $a : b$

① At present age of A $= \frac{x \times T(a-b)}{xb-ya}$

② At present age of B $= \frac{y \times T(a-b)}{xb-ya}$

③ After T years aged A $= \frac{a \times T(x-y)}{xb-ya}$

④ After T years aged B $= \frac{b \times T(x-y)}{xb-ya}$

	F	:	S
At present	4	:	1
After 30 years	2	:	1

$$F = \frac{4 \times 30 \times (2-1)}{4-2} \qquad S = \frac{1 \times 30(2-1)}{4-2}$$

$F = 60$ years $\qquad = 15$ years

11. $x - y = 3$

12. $x^2 - y^2 = 51$

$(x+y)(x-y) = 51$

$x+y = \frac{51}{3} = 17$

$x+y = 17$

$x-y = 3$

$2x = 20$

$x = 10$

$y = 7$

12. condition - ① Reversing woman and husbands age

condition - ② Difference of their age $= \frac{1}{11}$ of their sum

ⓐ 34, 43

$9 = \frac{(34+43)}{11}$

$9 \neq 7$

ⓑ 45 54

$9 = \frac{99}{11}$

$9 = 9$

13. 100 kg — 100 people

Old	young	child
3 kg	2 kg	$\frac{1}{2}$ kg

(a) 5, 45, 50 = 100 ✓ (b) 5 + 15 + 75 = 95 ✗

(c) 5 + 25 + 70 = 100 ✓ (d) 5 + 70 + 80 = 155 ✗

(a) → $5 \times 3 + 45 \times 2 + 50 \times 0.5 = 130 > 100$

(c) → $5 \times 3 + 25 \times 2 + 70 \times 0.5 = 100 = 100$

14. $h + c = 40$; $h + s = 60$; $c + s = 90$

In one day they can eat

$h + c = \frac{1}{40}$ $h + s = \frac{1}{60}$ $c + s = \frac{1}{90}$

All in one day

$$h + c + h + s + c + s = \frac{1}{40} + \frac{1}{60} + \frac{1}{90}$$

$$h + c + s = \frac{19}{720} \text{ in one day}$$

whole pastur can eat all = $\frac{720}{19}$ days

15. x, y $x \sim y = 30$

$$x \times y = 1624$$

$$y = \frac{1624}{x}$$

$$\frac{1624}{x} - x = 30$$

$$1624 - x^2 = 30x$$

$$x^2 + 30x - 1624 = 0$$

$$x = 28$$

16. (a) 5 and 6 $\Rightarrow$ $5^2 - 6^2 = 9$ not cube ✗

(c) 5 and 10 $\Rightarrow$ $5^2 - 10^2 = 75$ not cube ✗

✓(d) 10 and 6 $\Rightarrow$ $10^2 - 6^2 = 64 \Rightarrow (4)^3$

$$10^3 - 6^3 = 1000 - 216$$

$$= 784$$

$$= (28)^2$$