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DAY - 37

MATHS

MISCELLANEOUS

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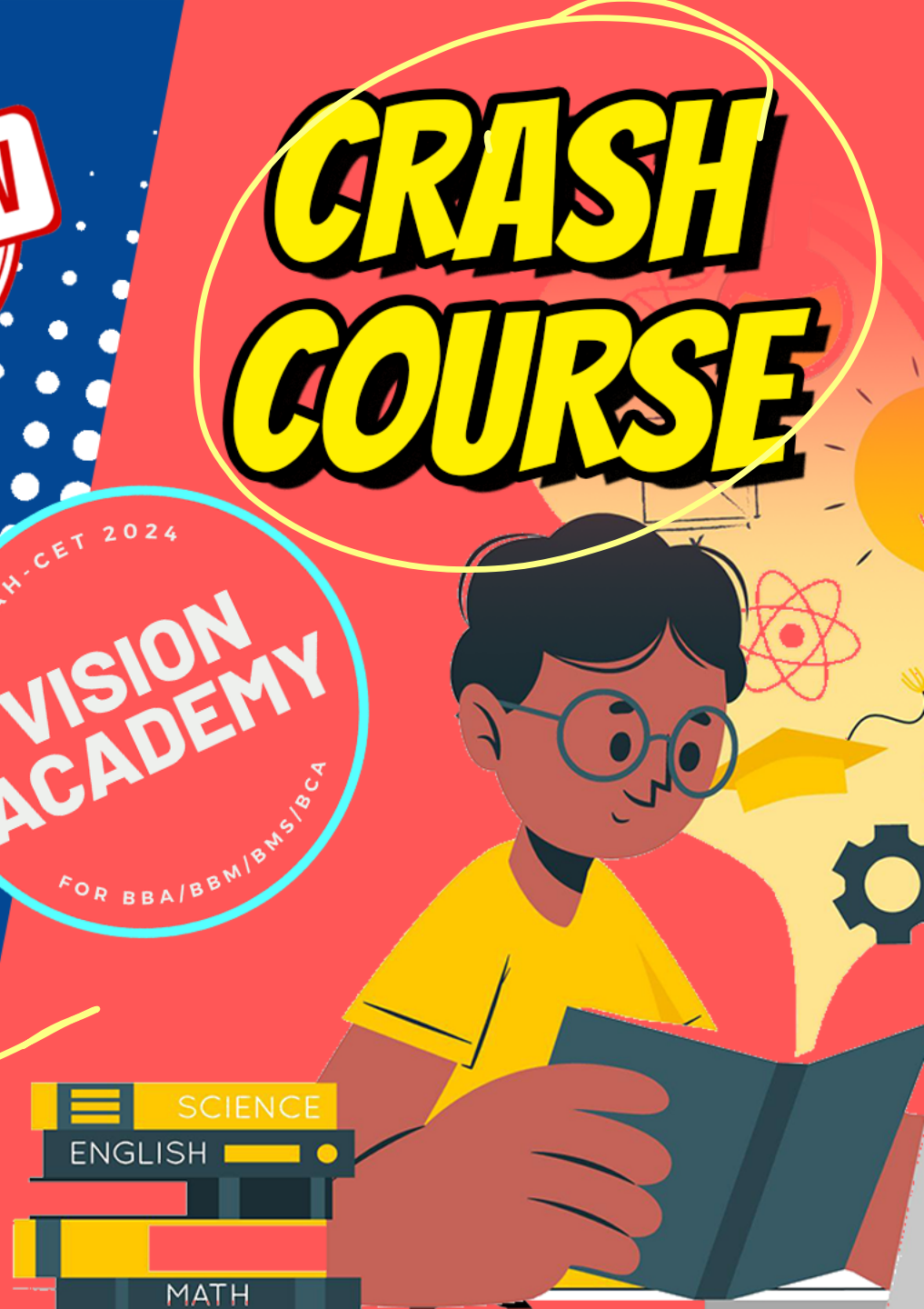

TOTAL QUESTIONS TODAY: 10

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2

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Average / Mean

FORMULA

$$= \frac{\text{SUM OF ALL OBS.}}{\text{TOTAL OBS.}}$$

Runs in 1 over: 6 4 1 0 4 0 = 15

Avg. Run per ball $= \frac{\text{Sum of all runs}}{\text{total no. of balls}}$

$= \frac{15}{6} = 2.5$

Sum of all weight of 20 boys = X

1. The average weight of a group of 20 boys was calculated to be 89.4 kg and it was later discovered that one weight was misread as 78 kg instead of the correct one of 87 kg. The correct average weight is

A. 89.55 kg
B. 89.25 kg
C. 89.85 kg
D. 89.95 kg

$$\frac{X}{20} = 89.4$$

$$X = 89.4 \times 20 = 1788$$

$$\frac{1797}{20} = 89.85$$

Corrected total weight = 1788 − 78 + 87

= 1710 + 87

= 1797

170 → 100

197

century → 100 year-

2. The population of a town increased from 1,00,000 to 1,50,000 in a decade. What is the average percent increase per year?

10 years

Diff = 150000 − 100000

= 50000

A. 2
B. 3
C. 4
D. 5

$\frac{50000}{100000} \times 100 = 50\%$ in 10 years

$\frac{50}{10} = 5\%$

D

3. Typist A can type a sheet in 5 minutes, typist B in 6 minutes and typist C in 8 minutes. The average number of sheets typed per hour per typist is ____ sheets.

A. 8.83
B. 7.83
C. 7
D. None

A → 5 B → 6 C → 8

1 hr → $\left(\frac{60}{5}\right)12$ $\left(\frac{60}{6}\right)10$ $\left(\frac{60}{8}\right)7.5$

$$\frac{12+10+7.5}{3} = \frac{29.5}{3} = 9.833\ldots$$

$= 9.8\bar{3}$

25
24
10

D

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4. A grocer has a sale of Rs. 6435, Rs. 6927, Rs. 6855, Rs. 7230 and Rs. 6562 for 5 consecutive months. How much sale must he have in the sixth month so that he gets an average sale of Rs. 6500?

A. Rs. 4991
B. Rs. 5991
C. Rs. 6001
D. Rs. 6991

A

Total of sale in 6 months / 6 = Avg. Sale/month

$$\frac{6435 + 6927 + 6855 + 7230 + 6562 + X}{6} = 6500$$

$$34009 + X = 6500 \times 6$$

$$X = 39000 - 34009$$

$$X = 4991$$

4991

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5. The average weight of A, B and C is 45 kg. If the average weight of A and B be 40 kg and that of B and C be 43 kg, then the weight of B is:

A. 17 kg
B. 20 kg
C. 26 kg
D. 31 kg

$\frac{A+B+C}{3} = 45 \times 3 = 135$

$\frac{A+B}{2} = 40 \times 2 = 80$

$B+C = 43 \times 2 = 86$

$A+B+B+C = 166$

$135 + B = 166$

$B = 166 - 135$

$B = 31$

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Problems based on ages

Maths Basic

Linear eqn. in 1 & 2 variables

Linear eqn. 2 variations

Mother = x Daughter = y

30 = 25
40 = 35

6. The sum of the ages of a mother and a daughter is 50 years. Also 5 years ago the mother's age was 7 times the age of the daughter. The present ages of mother and daughter respectively are

A. 35 yr, 15 yr
B. 38 yr, 12 yr
C. 40 yr, 10 yr
D. 42 yr, 8 yr

C

$x + y = 50$ ——— (I)

5 yrs ago ⇒ Mother = $(x-5)$, Daughter = $(y-5)$

$(x-5) = 7(y-5)$

$x - 5 = 7y - 35$

$x - 7y = -30$ ——— (II)

$x + y = 50$

$-x + 7y = +30$

$8y = 80$

$y = 10$

$x = 50 - 10$

$x = 40$

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'x' = 'y'

7. A man is 24 years older than his son. In two years, his age will be twice the age of his son. What is the present age of his son?

A. 23
B. 22
C. 21
D. 20

$x = y + 24 \Rightarrow x - y = 24$ —— (I)

After 2 years · $(x+2)$

son = $(y+2)$

$x + 2 = 2(y+2)$

$x + 2 = 2y + 4$

$x - 2y = 2$ —— (II)

$x - y = 24$

$-x + 2y = 2$

$y = 22$

B

Present age ⟹ Kamal = x Son = y

8. Kamal was 4 times as old as his son 8 years ago. After 8 years, Kamal will be twice as old as his son. Find out the present age of Kamal.

MODERATE

A. 40
B. 38
C. 42
D. 36

	Kamal	Son
8 year ago	$(x-8)$	$(y-8)$
8 years after	$(x+8)$	$(y+8)$

$x-8 = 4(y-8) \Rightarrow x-8 = 4y-32$

$x-4y = -24$ — (I)

$(x+8) = 2(y+8) \Rightarrow x+8 = 2y+16$

$x-2y = 8$ — (II)

$x-4y = -24$
$-x+2y = -8$
$-2y = -32$
$y = 32/2 = 16$

$x = 40$

$x-32 = 8+32$

$A = B+2$ $\quad B = 2C \Rightarrow C = B/2$

9. A is two years older than B who is twice as old as C. If the total of the ages of A, B and C be 27, then how old is B?

A. 7
B. 8
C. 9
D. 10

$$A+B+C = 27$$

$$B+2+B+\frac{B}{2} = 27$$

$$2B+\frac{B}{2} = 25$$

$$\frac{4B+B}{2} = 25 \times 2 = 50$$

$$5B = 50 \Rightarrow B = \frac{50}{5} = 10$$

BASIC MATHS

10. A person's present age is two-fifth of the age of his mother. After 8 years, he will be one-half of the age of his mother. How old is the mother at present?

A. 32 years
B. 36 years
C. 40 years
D. 48 years

$y = \frac{2}{5}x \Rightarrow 5y = 2x$

$2x - 5y = 0$

$y + 8 = \frac{1}{2}(x + 8)$

$2y + 16 = x + 8$

$x - 32 = 8$

$x = 8 + 32$

$\Rightarrow x - 2y = 8$

$2x - 4y = 16$

$2x - 5y = 0$

$-\ 2x + 4y = 16$

$-y = -16$

$y = 16$

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