

# CDS-AFCAT 1 2025

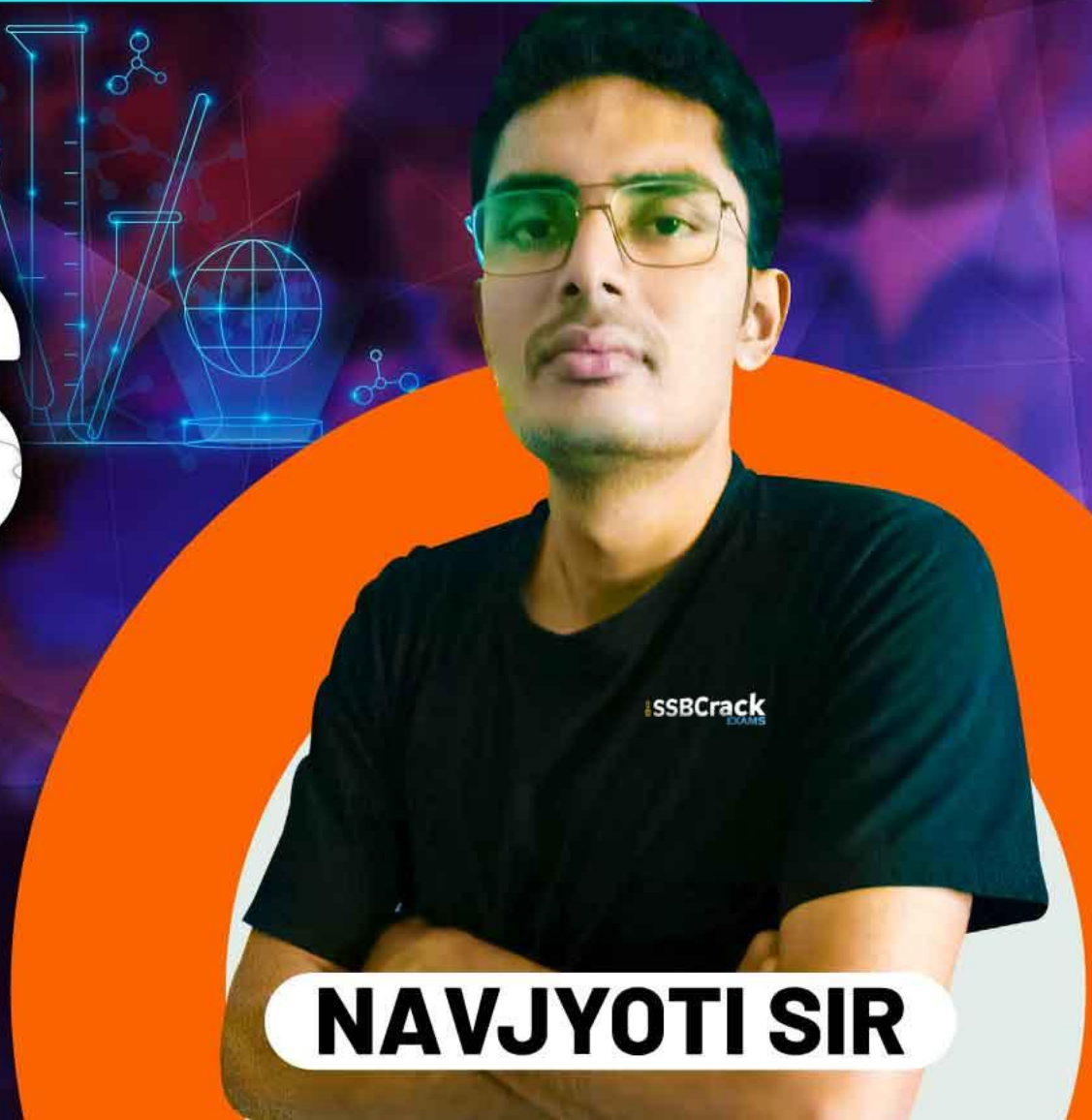
SSBCrack  
EXAMS

LIVE

# MATHS

## PERCENTAGE

# MCQS



NAVJYOTI SIR



## 21 Jan 2025 Live Classes Schedule

9:00AM --- 21 JANUARY 2025 DAILY DEFENCE UPDATES --- DIVYANSHU SIR

10:00AM --- 21 JANUARY 2025 DAILY CURRENT AFFAIRS --- RUBY MA'AM

### SSB INTERVIEW LIVE CLASSES

9:30AM --- OVERVIEW OF GROUP TASKS --- ANURADHA MA'AM

### AFCAT 1 2025 LIVE CLASSES

✓ 12:30PM --- REASONING - VERBAL ANALOGY --- RUBY MA'AM

✓ 3:00PM --- STATIC GK - KNOW YOUR ARMED FORCES --- DIVYANSHU SIR

✓ 4:30PM --- ENGLISH - SPOTTING ERRORS - CLASS 2 --- ANURADHA MA'AM

✓ 5:30PM --- MATHS - PERCENTAGE --- NAVJYOTI SIR

### NDA 1 2025 LIVE CLASSES

10:00AM --- MATHS - SETS, RELATION AND FUNCTION - CLASS 1 --- NAVJYOTI SIR

✓ 11:30AM --- ANCIENT HISTORY - CLASS 1 --- RUBY MA'AM

✓ 1:00PM --- PHYSICS - UNITS & DIMENSIONS --- NAVJYOTI SIR

✓ 4:30PM --- ENGLISH - SPOTTING ERRORS - CLASS 2 --- ANURADHA MA'AM

### CDS 1 2025 LIVE CLASSES

✓ 11:30AM --- ANCIENT HISTORY - CLASS 1 --- RUBY MA'AM

✓ 1:00PM --- PHYSICS - UNITS & DIMENSIONS --- NAVJYOTI SIR

✓ 4:30PM --- ENGLISH - SPOTTING ERRORS - CLASS 2 --- ANURADHA MA'AM

✓ 5:30PM --- MATHS - PERCENTAGE --- NAVJYOTI SIR



What is the square root of 64% ?

(a) 0.08%

(b) 0.8%

(c) 8%

(d) 80%

$$64\% = \frac{64}{100}$$

$$\sqrt{\frac{64}{100}} = \frac{8 \times 10}{10 \times 10} = \frac{80}{100} = 80\%$$

(or)  $\frac{8}{10} \times 100 = \underline{80\%}$

**CDS & AFCAT 1 2025 –REVISION - PERCENTAGE**

What is the square root of 64% ?

- (a) 0.08%
- (b) 0.8%
- (c) 8%
- (d) 80%

**Ans: D**

# QUESTION

The sum of two numbers is  $\frac{28}{25}$  of the first number. The second number is what percent of the first?

- (a) 12%  
(c) 16%

- (b) 14%  
(d) 18%

$$x + y = \frac{28}{25}x$$

convert this into %

$$y = \left( \frac{28}{25}x - x \right) = \left( \frac{3}{25} \right)x$$

$$\frac{3}{25} \times 100 = 12\%$$

# QUESTION

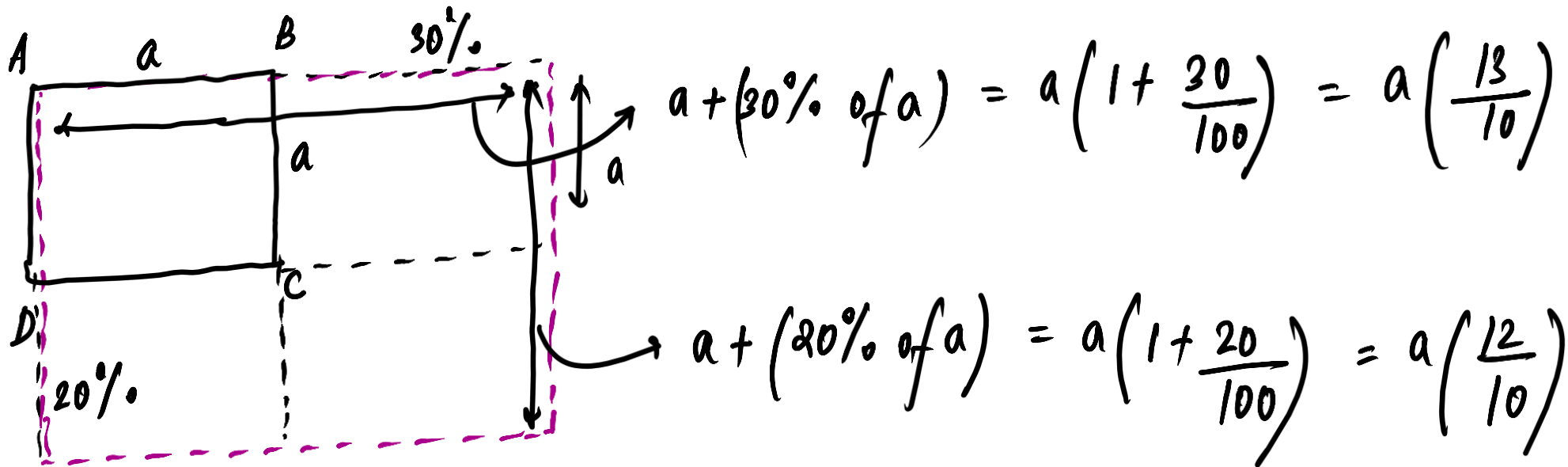
The sum of two numbers is  $\frac{28}{25}$  of the first number. The second number is what percent of the first?

- (a) 12%                      (b) 14%  
(c) 16%                      (d) 18%

**Ans: (a)**

Q) ABCD is a square. If the sides AB and CD are increased by 30%, sides BC and AD are increased by 20%, then the area of the resulting rectangle exceeds the area of the square by

- (a) 50%                      (b) 52%  
(c) 54%                      (d) 56%



$$\begin{aligned} \text{Original area (square)} &= a^2 \\ \text{New area (rectangle)} &= \left(\frac{13a}{10}\right) \left(\frac{12a}{10}\right) = \left(\frac{156}{100}\right) a^2 \end{aligned}$$

$$\begin{aligned} \% \text{ change} &= \left(\frac{156}{100} - 1\right) \times 100 \\ &= \underline{56\%} \end{aligned}$$



**Q)** ABCD is a square. If the sides AB and CD are increased by 30%, sides BC and AD are increased by 20%, then the area of the resulting rectangle exceeds the area of the square by

- |         |         |
|---------|---------|
| (a) 50% | (b) 52% |
| (c) 54% | (d) 56% |

**Ans: (d)**

Q) When the cost of petroleum increases by 40%, a man reduces his annual consumption by 20%. Find the percentage change in his annual expenditure on petroleum.

- (a) 20%                      (b) 16%  
 (c) 12%                      (d) 40%

Expenditure = cost  $\times$  consumption,

Let initial cost be ₹  $r$  and consumption be  $C$ . | Initial expenditure = ₹  $rc$

$$r \left(1 + \frac{40}{100}\right) C \left(1 - \frac{20}{100}\right)$$

$$rc \left(\frac{7}{5}\right) \left(\frac{4}{5}\right) = \frac{28}{25} rc$$

$$\left(\frac{28}{25} - 1\right) \times 100 = \frac{3}{25} \times 100 = 12\%$$

**Q)** When the cost of petroleum increases by 40%, a man reduces his annual consumption by 20%. Find the percentage change in his annual expenditure on petroleum.

- |         |         |
|---------|---------|
| (a) 20% | (b) 16% |
| (c) 12% | (d) 40% |

**Ans: (c)**

Q) When the price of sugar was increased by 32%, a family reduced its consumption in such a way that the expenditure on sugar was only 10% more than before. If 30 kg were consumed per month before, find the new monthly consumption.

- (a) 20 kg                      (b) 25 kg  
(c) 30 kg                      (d) None of these

let cost initially be ₹ r.

$$(30 \text{ kg}) \times \left(1 + \frac{10}{100}\right) = \left(1 + \frac{32}{100}\right) M$$

$$30 \times \frac{11}{10} = \left(\frac{132}{100}\right) M$$

$$\frac{30 \times 11 \times 10}{132} = M$$

$$M = 25 \text{ kg}$$

**Q)** When the price of sugar was increased by 32%, a family reduced its consumption in such a way that the expenditure on sugar was only 10% more than before. If 30 kg were consumed per month before, find the new monthly consumption.

- (a) 20 kg                                      (b) 25 kg  
(c) 30 kg                                      (d) None of these

**Ans: (b)**

A reduction of 20% in the price of an apple enable a man to buy 10 apple more for ₹ 54. The reduced price of apple per dozen is

- (a) ₹ 4.32                      (b) ₹ 12.96  
(c) ₹ 10.80                    (d) ₹ 14.40

let price of apple be ₹  $x$ .

Reduction in price  $\Rightarrow$  New price =  $x \left(1 - \frac{20}{100}\right) = \frac{4}{5}x$

$$\left(\frac{54}{x}\right) + 10 = \frac{54}{\left(\frac{4}{5}x\right)}$$

1 dozen =  $\frac{12}{\text{apples}}$

per dozen =  $12 \times \frac{4}{5}x$   
=  $\frac{48}{5}x$

$$\left(\frac{54}{x}\right) + 10 = \frac{54}{\left(\frac{4x}{5}\right)}$$

$$\frac{54}{x} - \frac{54 \times 5}{4x} + 10 = 0$$

$$\frac{54}{x} \left(1 - \frac{5}{4}\right) = -10$$

$$\frac{54}{x} \left(-\frac{1}{4}\right) = -10$$

$$\frac{54}{4x} = 10$$

$$x = \frac{27}{\frac{4 \times 10}{2}} = \frac{27}{20}$$

$$\frac{48}{5}x = \frac{12}{5} \times \frac{27}{20} = \frac{324}{25} = 12.96$$

A reduction of 20% in the price of an apple enable a man to buy 10 apple more for ₹ 54. The reduced price of apple per dozen is

- (a) ₹ 4.32                      (b) ₹ 12.96  
(c) ₹ 10.80                    (d) ₹ 14.40

**Ans: (b)**



Q) By reduction of 20% in the price of oranges, one can purchase 5 oranges more for ₹ 2.50. Find the reduced price of the oranges per dozen and also the original price.

- (a) 120 paise, 140 paise      (b) ₹ 0.8, ₹ 1.5  
 (c) ₹ 1.0, ₹ 1.5              (d) ₹ 1.2., ₹ 1.5
- ₹ x per orange*

$$\text{Reduced price} = ₹ x \left(1 - \frac{20}{100}\right) = ₹ \frac{4x}{5} \quad ; \quad \text{per dozen} = 12 \times \frac{4x}{5} = \frac{48x}{5}$$

$$\frac{2.50}{\left(\frac{4x}{5}\right)} - \frac{2.50}{x} = 5$$

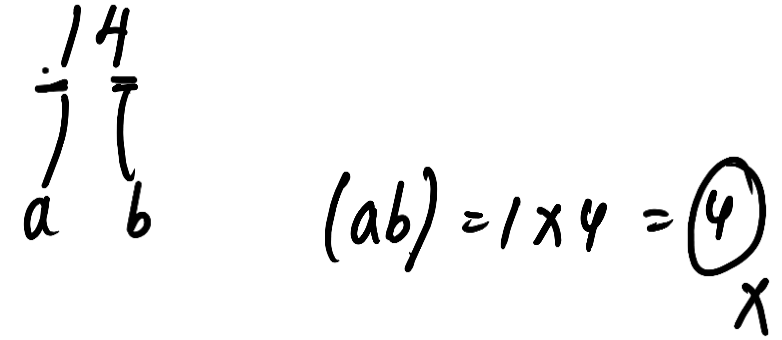
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(c) ₹ 1.0, ₹ 1.5              (d) ₹ 1.2., ₹ 1.5

**Ans: (d)**

Q) The digit at unit place of a two-digit number is increased by 100% and the digit at ten places of the same number is increased by 50%. The new number thus formed is 19 more than the original number. What is the original number?

- (a) 22
- (b) 63
- (c) 24
- (d) None of these



$$10 \times 1 + 4 = \underline{10a + b}$$

Ten's place

unit / one's digit

Number

$$\begin{array}{l} x \\ \downarrow +50\% \\ x \left( 1 + \frac{50}{100} \right) = \frac{3x}{2} \end{array}$$

$$\begin{array}{l} y \\ \downarrow +100\% \\ y \left( 1 + \frac{100}{100} \right) = \underline{2y} \end{array}$$

$$xy \ x \quad | \quad 10x + y \quad \checkmark$$

$$\begin{array}{rcl}
 x & y & \rightarrow 10x + y \quad \text{--- } \textcircled{19} \\
 \frac{3}{2}x & 2y & \rightarrow 10\left(\frac{3}{2}x\right) + 2y = 15x +
 \end{array}$$

$$(15x + 2y) - (10x + y) = 19$$

$$5x + y = 19$$

(a) 22       $5 \times 2 + 2 = 12 \quad \times$

(b) 63       $5 \times 6 + 3 = 33 \quad \times$

(c) 24       $5 \times 2 + 4 = 14 \quad \times$

(d) ✓

**Q)** The digit at unit place of a two-digit number is increased by 100% and the digit at ten places of the same number is increased by 50%. The new number thus formed is 19 more than the original number. What is the original number?

- (a) 22                                      (b) 63  
(c) 24                                      (d) None of these

**Ans: (d)**

Q) In an examination in which full mark were 500, A got 10% less than B. B got 25% more than C. C got 20% less than D. If A got 360 marks what % of full mark was obtained by D.

(a) 90%

(b) 80%

(c) 50%

(d) 60%

Let marks obtained by D be  $x$ .

$$\frac{9}{10}x = 360$$

$$x = 400$$

$$C \rightarrow 80\% \text{ of } x = \frac{4}{5}x$$

$$B \rightarrow \frac{4}{5}x \left(1 + \frac{25}{100}\right) = \frac{4}{5}x \times \frac{5}{4} = x$$

$$A \rightarrow 90\% \text{ of } x = \left(\frac{9}{10}x\right)$$

$$\frac{D's \%}{\frac{400}{500} \times 100} = 80\%$$

- Q) In an examination in which full mark were 500, A got 10% less than B. B got 25% more than C. C got 20% less than D. If a got 360 marks what % of full mark was obtained by D.
- (a) 90%                      (b) 80%  
(c) 50%                      (d) 60%

**Ans: (b)**

Q) The salary of a person is increased by 10% of his original salary. But he received the same amount even after increment. What is the percentage of his salary he did not receive?

- (a) 11%                                      (b) 10%  
(c) 100/11%                                (d) 90/11%

Let his original salary be ₹  $x$

$$x \left( 1 + \frac{10}{100} \right) = x \left( \frac{11}{10} \right) = \left( \frac{11}{10} x \right)$$

$$\frac{\left( \frac{11}{10} x - x \right)}{\left( \frac{11}{10} x \right)} \times 100$$

$$\frac{x}{11x} \times 100 = \left( \frac{100}{11} \right) \%$$



**Q)** The salary of a person is increased by 10% of his original salary. But he received the same amount even after increment. What is the percentage of his salary he did not receive?

- (a) 11%                      (b) 10%  
(c) 100/11%                (d) 90/11%

**Ans: (c)**

Q) If 50% of  $(x - y) = 40\%$  of  $(x + y)$ , then what per cent of  $x$  is  $y$ ?

(a)  $10\frac{1}{9}\%$

(b)  $11\frac{1}{9}\%$

(c)  $13\frac{1}{9}\%$

(d)  $21\frac{1}{9}\%$

( )  $x = y$

$$\frac{1}{2}(x - y) = \frac{2}{5}(x + y)$$

$$\frac{1}{2}x - \frac{2}{5}x = \frac{2}{5}y + \frac{1}{2}y$$

$$\frac{x}{10} = \frac{9}{10}y$$

$$x = 9y$$

$$y = \left(\frac{1}{9}\right)x$$

$$\frac{1}{9} \times 100$$

$$= \frac{100}{9} = 11\frac{1}{9}\%$$

**Q)** If 50% of  $(x - y) = 40\%$  of  $(x + y)$ , then what per cent of  $x$  is  $y$ ?

(a)  $10\frac{1}{9}\%$

(b)  $11\frac{1}{9}\%$

(c)  $13\frac{1}{9}\%$

(d)  $21\frac{1}{9}\%$

**Ans: (b)**

Q) If the height of a cone is increased by 50%, then what is the percentage increase in the volume of the cone?

(a)  $\frac{100}{3}\%$

(b) 40 %

(c) 50 %

(d)  $\frac{200}{3}\%$

let height be  $h$ .

Original volume =  $\frac{1}{3} \pi r^2 h = V$

New volume =  $\frac{1}{3} \pi r^2 h \left(1 + \frac{1}{2}\right) = \frac{1}{3} \pi r^2 h \times \frac{3}{2}$   
 $= \frac{3}{2} \left(\frac{1}{3} \pi r^2 h\right) = \frac{3}{2} V$

$\left(\frac{3}{2} - 1\right) \times 100$   
 $= 50\%$

**Q)** If the height of a cone is increased by 50%, then what is the percentage increase in the volume of the cone?

(a)  $\frac{100}{3}\%$

(b) 40 %

(c) 50 %

(d)  $\frac{200}{3}\%$

**Ans: (c)**

Q) Water contains  $14\frac{2}{7}\%$  of hydrogen and the rest is

oxygen. In 350 g of water, oxygen will be

- (a) 300g                                      (b) 250g  
(c) 200g                                      (d) None of these

$$\% \text{ of oxygen} = 100\% - \frac{100\%}{7} = \frac{600}{7}\%$$

or,

$$100\% - 14\frac{2}{7}\% = (99\% - 14\%) + (1\% - \frac{2}{7}\%)$$

$$\begin{aligned} \text{In } \underline{350 \text{ g}}, \quad \frac{600}{7}\% \text{ of } 350 \text{ g} &= \frac{\cancel{600}^6}{\cancel{7} \times 100} \times \frac{50}{\cancel{250}^5} = \boxed{300 \text{ g}} \\ &= 85\% + \frac{5}{7}\% = \underline{85\frac{5}{7}\%} \end{aligned}$$

Q) Water contains  $14\frac{2}{7}\%$  of hydrogen and the rest is

oxygen. In 350 g of water, oxygen will be

- |          |                   |
|----------|-------------------|
| (a) 300g | (b) 250g          |
| (c) 200g | (d) None of these |

**Ans: (a)**

Q) To an examination, a candidate needs 40% marks. All questions carry equal marks. A candidate just passed by getting 10 answers correct by attempting 15 of the total questions. How many questions are there in the examination?

(a) 25

(b) 30

(c) 40

(d) 45

Let the marks per question be  $x$ , and total questions in exam be  $Q$ .

$$\frac{10x}{Qx} \times 100 = 40$$

$$Q = \frac{10 \times 100}{40} = 25 \text{ questions}$$



**Q)** To an examination, a candidate needs 40% marks. All questions carry equal marks. A candidate just passed by getting 10 answers correct by attempting 15 of the total questions. How many questions are there in the examination?

(a) 25

(b) 30

(c) 40

(d) 45

**Ans: (a)**



Q) An employee is required to contribute 10% of his payment to General Provident Fund. If he gets ₹13500 as net pay in a month, then what is the monthly General Provident Fund contribution (assuming no other deductions)?

- |            |            |
|------------|------------|
| (a) ₹ 1215 | (b) ₹ 1350 |
| (c) ₹ 1500 | (d) ₹ 1650 |

**Ans: (c)**

Q) A man loses 20% of his money. After spending 25% of the remaining, he has ₹480 left. What is the amount of money he originally had?

- (a) ₹ 600                      (b) ₹ 720  
 (c) ₹ 800                      (d) ₹ 840
- ↙ ₹ x,

$$x - \left( 25\% \text{ of } 80\% \text{ of } x \right) = 480$$

$$x - \frac{1}{4} \times \frac{4}{5} \times x = 480$$

$$\frac{4}{5}x = 480 \Rightarrow x = \frac{480 \times 5}{4} = 600$$

Q) A man loses 20% of his money. After spending 25% of the remaining, he has ₹480 left. What is the amount of money he originally had?

- (a) ₹ 600                      (b) ₹ 720  
(c) ₹ 800                      (d) ₹ 840

**Ans: (a)**

- Q)  $A = 10\%$  of  $x$ ,  $B = 10\%$  of  $y$ ,  $C = 10\%$  of  $x + 10\%$  of  $y$ . On the basis of the above equalities, what is true in the following?
- (a)  $A$  is equal to  $B$
  - (b)  $A$  is greater than  $B$
  - (c)  $B$  is greater than  $A$
  - (d) Relation cannot be established between  $A$  and  $B$

because  $x$  and  $y$  are  
not known, or not  
compared,  
we don't know } if  $x > y$ ,  
or  $y > x$ .

- Q)  $A = 10\%$  of  $x$ ,  $B = 10\%$  of  $y$ ,  $C = 10\%$  of  $x + 10\%$  of  $y$ . On the basis of the above equalities, what is true in the following?
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  - (b)  $A$  is greater than  $B$
  - (c)  $B$  is greater than  $A$
  - (d) Relation cannot be established between  $A$  and  $B$

Ans: (d)

Q) The ratio of salary of a worker in July to that in June was

$2\frac{1}{2} : 2\frac{1}{4}$ , by what % the salary of July more than salary of

June. Also find by what %, salary of June was less than that of July.

- (a)  $11\frac{1}{9}\%$  and  $10\%$       (b)  $10\%$  and  $11\frac{1}{9}\%$   
 (c) Both  $10\%$       (d) Both  $11\frac{1}{9}\%$

$$2\frac{1}{2} : 2\frac{1}{4}$$

$$\frac{5}{2} : \frac{9}{4} \Rightarrow \frac{5}{2}$$

$$5 : \frac{9}{2}$$

$$\frac{9}{4 \times 2}$$

10 : 9

July

June

$$\rightarrow \frac{10 - 9}{9} \times 100 = \frac{100}{9}\% = 11\frac{1}{9}\%$$

$$\rightarrow \frac{10 - 9}{10} \times 100 = 10\%$$



Q) The ratio of salary of a worker in July to that in June was

$2\frac{1}{2} : 2\frac{1}{4}$ , by what % the salary of July more than salary of

June. Also find by what %, salary of June was less than that of July.

- (a)  $11\frac{1}{9}\%$  and  $10\%$       (b)  $10\%$  and  $11\frac{1}{9}\%$
- (c) Both  $10\%$       (d) Both  $11\frac{1}{9}\%$

**Ans: (a)**

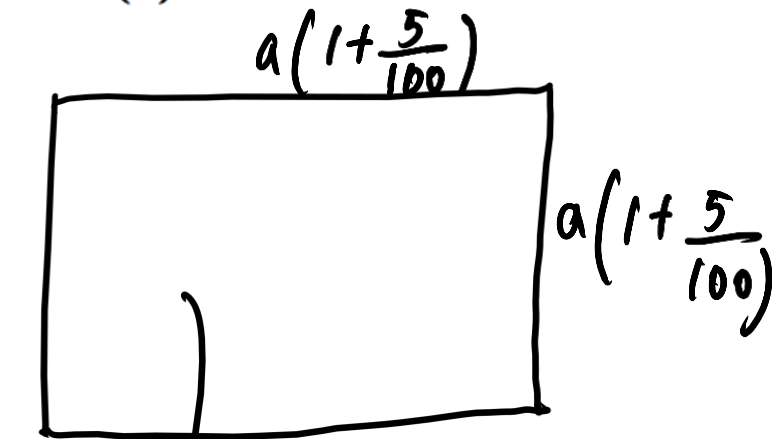
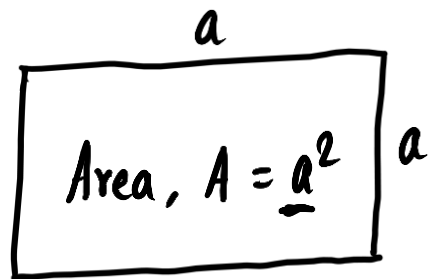
Q) In measuring the side of a square, an error of 5% in excess is made. The error % in the calculated area is

(a)  $10\frac{1}{4}\%$

(b)  $10\frac{3}{4}\%$

(c)  $1\frac{3}{4}\%$

(d) 25%



$$\text{Area} = \left[ a\left(1 + \frac{5}{100}\right) \right]^2 = a^2 \left( \frac{21}{20} \right)^2 = a^2 \left( \frac{441}{400} \right) = \frac{441}{400} A$$

$\left( \frac{441}{400} - 1 \right) \times 100$   
 $\frac{41}{400} \times 100 = \frac{41}{4}\%$   
 $= 10\frac{1}{4}\%$

**Q)** In measuring the side of a square, an error of 5% in excess is made. The error % in the calculated area is

(a)  $10\frac{1}{4}\%$

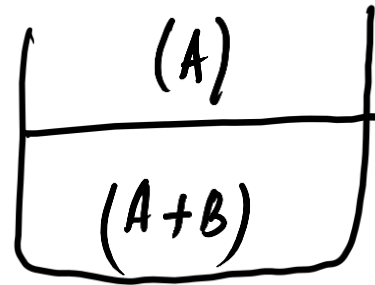
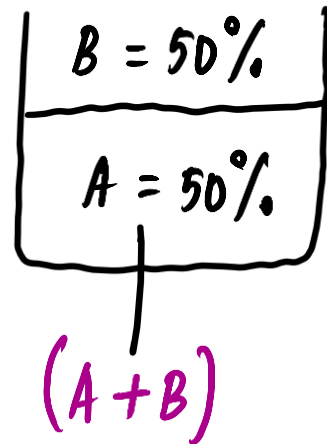
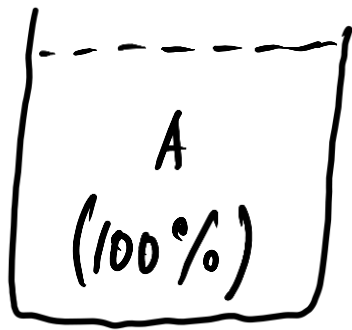
(b)  $10\frac{3}{4}\%$

(c)  $1\frac{3}{4}\%$

(d) 25%

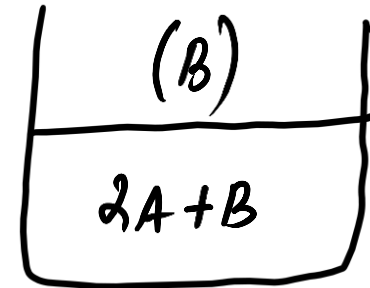
**Ans: (a)**

- Q) An empty fuel tank of a car was filled with A type petrol. When the tank was half-empty, it was filled with B type petrol. Again when the tank was half-empty, it was filled with A type petrol. When the tank was half-empty again, it was filled with B type petrol. What is the percentage of A type petrol at present in the tank?
- (a) 33.5%   (b) 37.5%   (c) 40%   (d) 50%



$$A = \frac{50\%}{2} + 50\% = \underline{\underline{75\%}}$$

$$B = \frac{50\%}{2} = \underline{\underline{25\%}}$$



$$A = \frac{75\%}{2} = \text{37.5\%}$$

$$B = \frac{25\%}{2} + 50\%$$

- Q) An empty fuel tank of a car was filled with A type petrol. When the tank was half-empty, it was filled with B type petrol. Again when the tank was half-empty, it was filled with A type petrol. When the tank was half-empty again, it was filled with B type petrol. What is the percentage of A type petrol at present in the tank?
- (a) 33.5%   (b) 37.5%   (c) 40%   (d) 50%

**Ans: (b)**

Q) On a certain date, Pakistan has a success rate of 60% against India in all the ODIs played between the two countries. They lost the next 30 ODIs in a row to India and their success rate comes down to 30%. The total number of ODIs played between the two countries is

- (a) 50      (b) 45      (c) 60      (d) 30

$$\frac{60}{100} \times x = (x + 30) \times \frac{30}{100}$$
$$\frac{3}{5}x = \frac{3}{10}x + 9$$
$$\frac{3}{5}x - \frac{3}{10}x = 9$$
$$\frac{6x - 3x}{10} = 9$$
$$3x = 90 \Rightarrow x = 30$$

- Q) On a certain date, Pakistan has a success rate of 60% against India in all the ODIs played between the two countries. They lost the next 30 ODIs in a row to India and their success rate comes down to 30%. The total number of ODIs played between the two countries is
- (a) 50      (b) 45      (c) 60      (d) 30

**Ans: (c)**

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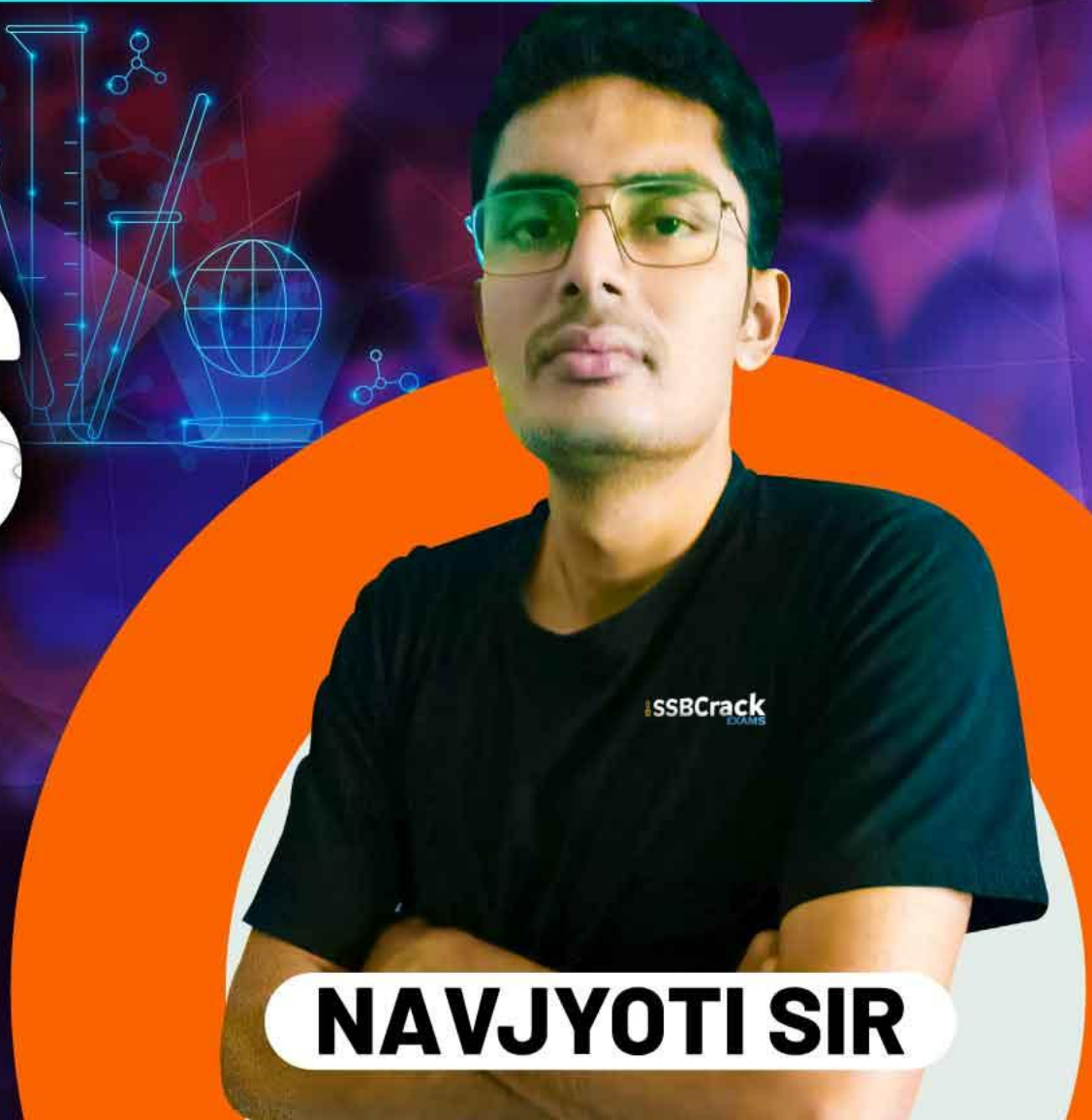
SSBCrack  
EXAMS

LIVE

# MATHS

## PROFIT & LOSS

# MCQS



NAVJYOTI SIR