CDS-AFCAT 1 2025

SSBCrack EXAMS

LIVE

MATHS

PERCENTAGE

CLASS 1

NAVJYOTI SIR

24 Sep 2024 Live Classes Schedule

8:00AM	24 SEP 2024 DAILY CURRENT AFFAIRS	RUBY MA'AM
9:00AM	24 SEP 2024 DAILY DEFENCE UPDATES	DIVYANSHU SIR

NDA 1 2025 LIVE CLASSES

11:30AM	GK - PHYSICAL GEOGRAPHY - CLASS 1	RUBY MA'AM
1:00PM	BIOLOGY - HUMAN BODY - CLASS 1	SHIVANGI MA'AM
4:00PM	MATHS - QUADRATIC EQUATIONS - CLASS 1	NAVJYOTI SIR

CDS 1 2025 LIVE CLASSES

11:30AM	GK - PHYSICAL GEOGRAPHY - CLASS 1	RUBY MA'AM
1:00PM	BIOLOGY - HUMAN BODY - CLASS 1	SHIVANGI MA'AM
2:30PM	MATHS - PERCENTAGE - CLASS 1	NAVJYOTI SIR

AFCAT 1 2025 LIVE CLASSES

10:00AM	REASONING - VERBAL ANALOGY	RUBY MA'AM
2:30PM	MATHS - PERCENTAGE - CLASS 1	NAVJYOTI SIR
4:00PM	STATIC GK - DEFENCE EXERCISE	DIVYANSHU SIR

SSBCrack EXAMS

PERCENTAGE

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

(64 out of 100)

$\frac{64}{100}$ — 64: part, 100: whole

SSBCrack EXAMS

FRACTION AND DECIMAL TO % CONVERSION

$1 \rightarrow \frac{1}{1} \rightarrow 100\%$ (multiply by 100) — 100.0 %

$\frac{1}{2} \rightarrow \frac{1}{2} \times 100 = 50\%$

$\frac{1}{3} \rightarrow 33\frac{1}{3}\% \rightarrow 33.33\%$

$\frac{1}{4} \rightarrow 25\%$

$\frac{1}{5} \rightarrow 20\%$

$\frac{1}{6} = 16\frac{2}{3}\% = 16.66$

FRACTION AND DECIMAL TO % CONVERSION

SSBCrack EXAMS

FRACTION AND DECIMAL TO % CONVERSION

Fraction	Percentage	Percentage
1	100%	100%
$\frac{1}{2}$	50%	50%
$\frac{1}{3}$	33.33%	$33\frac{1}{3}\%$
$\frac{1}{4}$	25%	25%
$\frac{1}{5}$	20%	20%
$\frac{1}{6}$	16.66%	$16\frac{2}{3}\%$
$\frac{1}{7}$	14.28%	$14\frac{2}{7}\%$
$\frac{1}{8}$	12.5%	$12\frac{1}{2}\%$
$\frac{1}{9}$	11.11%	$11\frac{1}{9}\%$
$\frac{1}{10}$	10%	10%
$\frac{1}{11}$	9.09%	$9\frac{1}{11}\%$
$\frac{1}{12}$	8.33%	$8\frac{1}{3}\%$
$\frac{1}{13}$	7.69%	$7\frac{9}{13}\%$
$\frac{1}{14}$	7.14%	$7\frac{1}{7}\%$
$\frac{1}{15}$	6.66%	$6\frac{2}{3}\%$
$\frac{1}{16}$	6.25%	$6\frac{1}{4}\%$
$\frac{1}{17}$	5.88%	$5\frac{15}{17}\%$
$\frac{1}{18}$	5.55%	$5\frac{5}{9}\%$
$\frac{1}{19}$	5.26%	$5\frac{5}{19}\%$
$\frac{1}{20}$	5%	5%

SSBCrack EXAMS

FRACTION AND DECIMAL TO % CONVERSION

$\frac{1}{21}$	4.76%	$4\frac{16}{21}\%$
$\frac{1}{22}$	4.54%	$4\frac{6}{11}\%$
$\frac{1}{23}$	4.34%	$4\frac{8}{23}\%$
$\frac{1}{24}$	4.16%	$4\frac{1}{6}\%$
$\frac{1}{25}$	4%	4%
$\frac{1}{40}$	2.5%	$2\frac{1}{2}\%$

FINDING PERCENTAGE

$\frac{1}{5} \longrightarrow 20\%$

$\frac{8}{5} \longrightarrow 3 \times \left(\frac{1}{5}\right)$

$= 3 \times 20\% = 60\%$

$\frac{4}{5} = 4 \times \left(\frac{1}{5}\right) = 4 \times 20\% = \underline{80\%}$

$\frac{4}{3} = 4 \times \left(\frac{1}{3}\right) = 4 \times 33\frac{1}{3}$

$= 132\left(\frac{4}{3}\right)$

$1 + \frac{1}{3}$

$= \underline{133\frac{1}{3}\%}$

SSBCrack EXAMS

FINDING PERCENTAGE

→ $\frac{5}{6} = 1 - \frac{1}{6}$

$= 100\% - 16\left(\frac{2}{3}\right)\%$

$= 84\% - \frac{1}{3}\% = 83\frac{2}{3}\%$

→ $\frac{68}{12} = 5\frac{8}{12}$

$= 5 + \frac{2}{3} = 5 + 2\left(\frac{1}{3}\right)$

$= 500\% + 2\left(33\frac{1}{3}\%\right) = 566\frac{2}{3}\%$

SSBCrack EXAMS

FINDING PERCENTAGE OF A NUMBER

→ 4% of 64 = $\frac{4}{100}$ × 64 = 4 × 0.64 = 2.56

(1% of 64 = 0.64)

4% = 4 × 1%

→ 24% of 75

(20% + 4%)

2 × 10% + 4 × 1%

10% = 7.5

1% = 0.75

2 × 7.5 + 4 × 0.75

= 15 + 3

= 18

→ 17% of 70 = 7 + 7 × 0.7

= 7 + 4.9 = 11.9

→ 88% of 60 = 8 × 10% + 8 × 1%

= 8 × 6 + 8 × 0.6

= 48 + 4.8

= 52.8

FINDING PERCENTAGE OF A NUMBER

$x\%$ of $y = y\%$ of x

→ 88% of $60 = 60\%$ of 88

$= 6 \times 8.8$

$= 52.8$

→ 72% of $40 = 28.8$

EXAMPLE

There are 300 eggs in basket and 20% eggs are rotten. How many eggs are in good condition?

80% of 300 eggs = 240 eggs

EXAMPLE

The difference between 58% of a number and 39% of the same number is 247.

What is 62% of that number?

$$(58\% - 39\%) \text{ of } x = 247$$

$$1\frac{19}{100} \times x = 247 \quad 13$$

$$x = 1300$$

$$62\% \text{ of } 1300 = \frac{62}{100} \times 1300 = 780 + 26$$

$$= 806$$

EXAMPLE

In an examination passing marks are 35%. A person got 80 marks and fail by 25 marks. Find total marks?

PERCENTAGE INCREASE / DECREASE

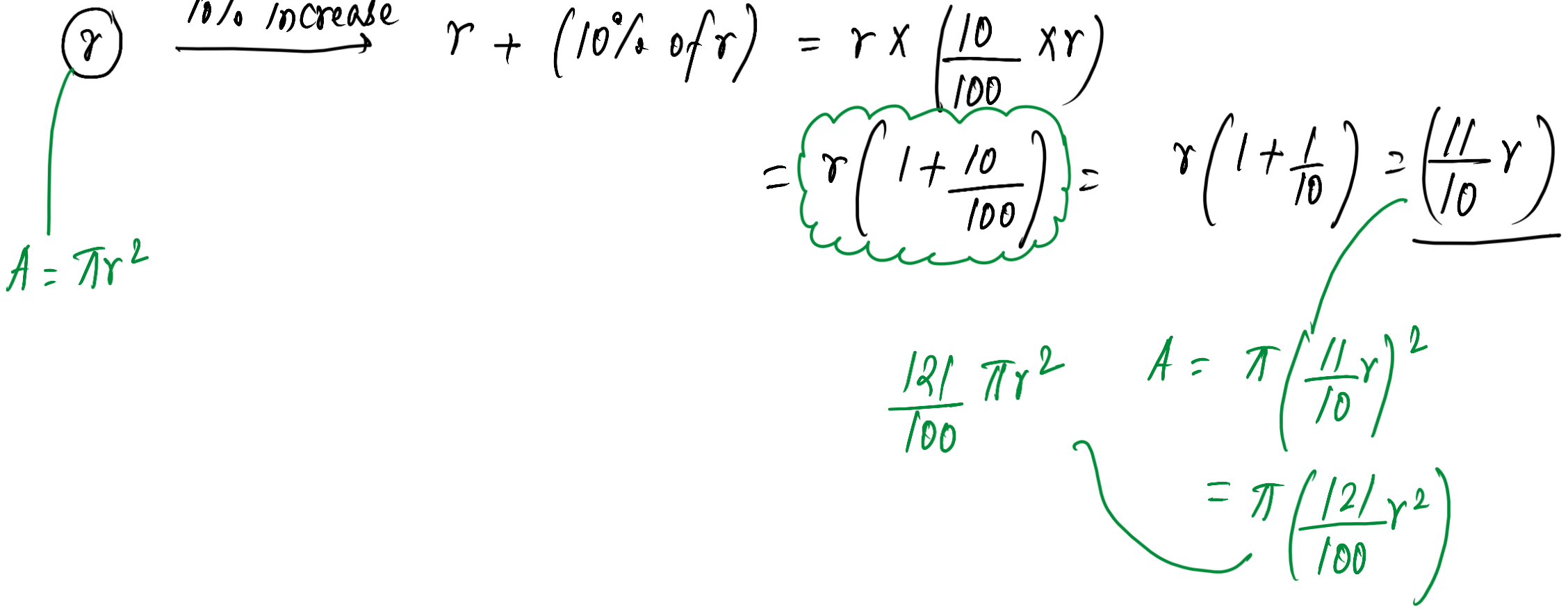
$$\%\ \text{increase} = \frac{\text{Increase}}{\text{Increase w.r.t. what}} \times 100$$

$$\%\ \text{decrease} = \frac{\text{decrease}}{\text{decrease w.r.t. what}} \times 100$$

EXAMPLE

$r\left(1-\frac{10}{100}\right)$

If the radius of a circle is increased by 10 %, what is the percentage increase in its area ?



$$\text{Increase} = \frac{121}{100}\pi r^2 - \pi r^2 = \frac{21}{100}\pi r^2$$

$$\%\ \text{increase} = \frac{\frac{21}{100}\pi r^2}{\pi r^2} \times 100 = \frac{21}{100} \times 100 = 21\%$$

$A = \pi r^2$ ✓

$A' = \left(\frac{121}{100}\right)\pi r^2$

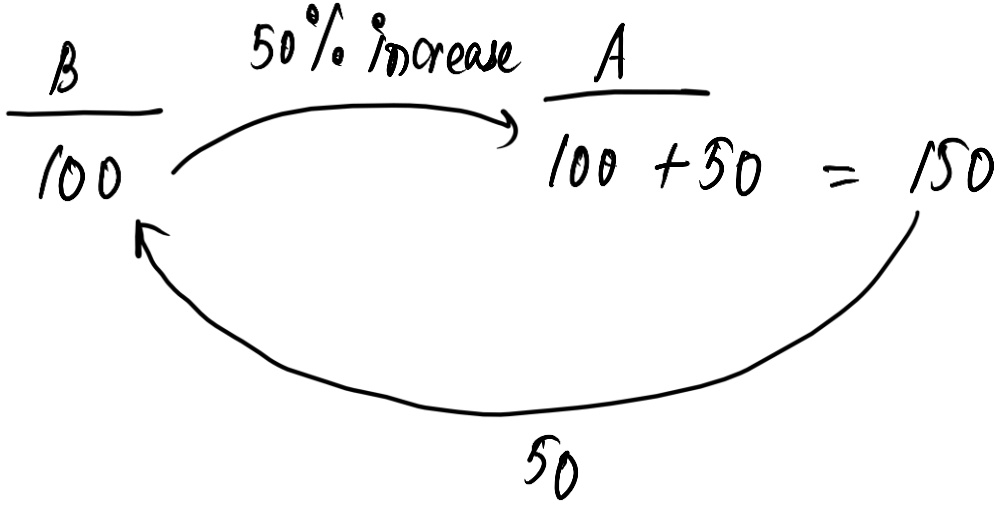
$$\left(\frac{121}{100} - 1\right) \times 100 = 21\%$$

EXAMPLE

If the length and width of a rectangular garden were each increased by 20%, then what would be the per cent increase in the area of the garden ?

EXAMPLE

If A's salary is 50 % more than B's, then by what percent B's salary is less than A's salary ?



$$\frac{\text{Diff of A \& B's salaries}}{\text{A's salary}} \times 100$$

$$= \frac{50}{150} \times 100$$

$$= \frac{1}{3} \times 100 = 33\frac{1}{3}\%$$

SUCCESSIVE INCREASE

- If a number A is increased successively by $x\%$ followed by $y\%$ and then $z\%$, then the final value of A will be

$$A\left(1+\frac{x}{100}\right)\left(1+\frac{y}{100}\right)\left(1+\frac{z}{100}\right)$$

$A\left(1+\frac{x}{100}\right)$

$\left[A\left(1+\frac{x}{100}\right)\right]\left(1+\frac{y}{100}\right)$

CHANGE IN COST OR POPULATION

- Let the present value of a machine be P. Suppose it depreciates at the rate of $r\%$ per annum. Then :
- Value of the machine after n years = $P(1-\frac{r}{100})^n$
- Value of the machine n years ago = $\frac{P}{(1-\frac{r}{100})^n}$

$P\left(1-\frac{r}{100}\right)$ — 1st year

$P\left(1-\frac{r}{100}\right)\left[\left(1-\frac{r}{100}\right)\right]$

$= P\left(1-\frac{r}{100}\right)^2$

SSBCrack EXAMS

SUCCESSIVE CHANGE AND OVERALL % CHANGE

- If the value is first increased by x % and then decreased by y % then there is –

$\left(x - y - \frac{xy}{100}\right)$ % increase or decrease, according to the +ve or –ve sign respectively.

- If the value is first increased by x% and then decreased by x % then there is only decrease which is equal to $(\frac{x^2}{100})$.

increase ⟶ +

decrease ⟶ –

$$\left[(+x\%) + (+y\%) + \frac{(+x)(+y)}{100}\right]\%$$

$+ \longrightarrow$ increase

$- \longrightarrow$ decrease

x % increase, then y % decrease,

$$\left[(+x) + (-y) + \frac{(+x)(-y)}{100}\right]\%$$

$$= \left[x - y - \frac{xy}{100}\right]\%$$

$$\left[(\%) + (\%) + \frac{(\text{product})}{100}\right]\%$$

$$\left[(-x)+(-y)+\frac{(-x)(-y)}{100}\right]\%$$

$\rightarrow$ (A) $\longrightarrow$ $A\left(1+\frac{x}{100}\right)$ (x% increase)

x% decrease

$$A\left(1+\frac{x}{100}\right)\left(1-\frac{x}{100}\right) = A\left(1-\frac{x^2}{100^2}\right)$$

$$\left[\left(1-\frac{x^2}{100^2}\right)-1\right]\times 100$$

$$-\frac{x^2}{100}\times 100$$

$$-\frac{x^2}{100}\times 100$$

$$-\frac{x^2}{100}\ \%$$

EXAMPLE

A number is increased by 10% and then it is decreased by 10%. Find the net increase or decrease per cent.

$$-\frac{x^2}{100}\% = -\frac{(10)^2}{100} = -1\%$$ (decrease by 1%)

EXAMPLE

The price of a car is decreased by 10 % and 20 % in two successive years. What per cent of price of a car is decreased after two years ?

EXAMPLE

Ravi’s weight is 25% that of Meena’s and 40% that of Tara’s. What percentage of Tara’s weight is Meena’s weight?

QUESTION

If the numerator of a fraction is increased by 200% and the denominator of the fraction is increased by 150%, the resultant fraction is $\frac{9}{35}$. What is the original fraction?

(a) $\frac{3}{10}$ (b) $\frac{2}{15}$

(c) $\frac{3}{14}$ (d) $\frac{2}{7}$

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If the numerator of a fraction is increased by 200% and the denominator of the fraction is increased by 150%, the resultant fraction is $\frac{9}{35}$. What is the original fraction?

(a) $\frac{3}{10}$ (b) $\frac{2}{15}$

(c) $\frac{3}{14}$ (d) $\frac{2}{7}$

Ans: (c)

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%

QUESTION

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

Ans: (a)

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CLASS 2

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