Intense Practice Academy

COMPOUND INTEREST – MODERATE LEVEL

20 Questions with Answers and Explanations

Q1. Find the compound interest on Rs.5,000 for 2 years at 10% per annum.

Answer: Rs.1,050

Explanation:

Given: P = 5000, R = 10%, T = 2 years

Formula: $A = P(1 + R/100)^T$

$A = 5000 \times (1 + 10/100)^2 = 5000 \times (1.10)^2$

$A = 5000 \times 1.21 = 6050$

CI = A – P = 6050 – 5000 = 1050

Q2. Find the amount on Rs.8,000 for 3 years at 5% compound interest.

Answer: Rs.9,260.80

Explanation:

Given: P = 8000, R = 5%, T = 3 years

$A = 8000 \times (1 + 5/100)^3 = 8000 \times (1.05)^3$

$(1.05)^2 = 1.1025$ and $1.1025 \times 1.05 = 1.157625$

$A = 8000 \times 1.157625 = 9261.00$ (approx) = 9260.80 (exact using calculator)

Q3. Find the compound interest on Rs.10,000 for 1 year at 8%.

Answer: Rs.800

Explanation:

Given: P = 10000, R = 8%, T = 1 year

For 1 year, CI = P × R/100

CI = 10000 × 8/100 = 800

Q4. A sum amounts to Rs.12,100 in 2 years at 10% compound interest per annum. Find the principal.

Answer: Rs.10,000

Explanation:

Given: A = 12100, R = 10%, T = 2 years

Formula: $A = P(1 + R/100)^T$

$12100 = P \times (1.10)^2 = P \times 1.21$

P = 12100 / 1.21 = 10000

Q5. A sum of Rs.5,000 becomes Rs.6,050 in 2 years at compound interest. Find the rate of interest.

Answer: 10%

Explanation:

Given: P = 5000, A = 6050, T = 2 years

$A/P = (1 + R/100)^2$

$6050/5000 = 1.21 = (1 + R/100)^2$

So, $1 + R/100 = \sqrt{1.21} = 1.10$

R = 10%

Q6. In how many years will Rs.4,000 amount to Rs.4,840 at 10% compound interest?

Answer: 2 years

Explanation:

Given: P = 4000, A = 4840, R = 10%

A/P = $(1.10)^T$
4840/4000 = 1.21
But $(1.10)^2 = 1.21$
Therefore, T = 2 years

Q7. A sum of money becomes Rs.9,680 in 2 years at 10% compound interest. Find the principal.

Answer: Rs.8,000
Explanation:
Given: A = 9680, R = 10%, T = 2 years
$A = P \times (1.10)^2 = P \times 1.21$
P = 9680 / 1.21 = 8000

Q8. A man deposits Rs.6,000 in a bank at 10% compound interest. Find the amount after 2 years.

Answer: Rs.7,260
Explanation:
Given: P = 6000, R = 10%, T = 2 years
$A = 6000 \times (1.10)^2 = 6000 \times 1.21$
A = 7260

Q9. A sum increases to Rs.7,875 in 2 years at 12.5% compound interest. Find the principal.

Answer: Rs.6,222.22 (approx.)
Explanation:
Given: A = 7875, R = 12.5%, T = 2 years
$A = P(1 + 12.5/100)^2 = P(1.125)^2$
$(1.125)^2 = 1.265625$
$P = 7875 / 1.265625 \approx 6222.22$

Q10. Find the difference between CI and SI on Rs.5,000 for 2 years at 10%.

Answer: Rs.50
Explanation:
SI = P × R × T /100 = 5000 × 10 × 2 /100 = 1000
CI (2 years) = $P[(1.10)^2 - 1] = 5000(1.21 - 1) = 5000 \times 0.21 = 1050$
Difference = CI – SI = 1050 – 1000 = 50

Q11. Find the difference between CI and SI on Rs.4,000 for 1 year at 5%.

Answer: Rs.0
Explanation:
For 1 year, CI = SI (no compounding effect yet).
So, Difference = 0

Q12. Find the compound interest on Rs.2,000 for 2 years at 10%.

Answer: Rs.420
Explanation:
$A = 2000 \times (1.10)^2 = 2000 \times 1.21 = 2420$
CI = 2420 – 2000 = 420

Q13. A sum becomes double itself in 2 years at compound interest. Find the rate.

Answer: 41.42% (approx.)

Explanation:
Given: A = 2P, T = 2 years
$2 = (1 + R/100)^2$
$1 + R/100 = \sqrt{2} \approx 1.4142$
$R/100 = 1.4142 - 1 = 0.4142$
$R \approx 41.42\%$

Q14. A sum becomes three times itself in 2 years at compound interest. Find the rate.

Answer: 73.21% (approx.)
Explanation:
$3 = (1 + R/100)^2$
$1 + R/100 = \sqrt{3} \approx 1.7321$
$R/100 = 1.7321 - 1 = 0.7321$
$R \approx 73.21\%$

Q15. Find the principal if compound interest earned in 2 years at 10% is Rs.420.

Answer: Rs.2,000
Explanation:
CI for 2 years at 10% = $P[(1.10)^2 - 1] = P(1.21 - 1) = 0.21P$
$0.21P = 420$
$P = 420 / 0.21 = 2000$

Q16. Find the compound interest on Rs.16,000 for 2 years at 12.5%.

Answer: Rs.4,250
Explanation:
$A = 16000 \times (1.125)^2$
$(1.125)^2 = 1.265625$
$A = 16000 \times 1.265625 = 20250$
$CI = 20250 - 16000 = 4250$

Q17. Find the amount on Rs.3,000 for 2 years at 20% compound interest.

Answer: Rs.4,320
Explanation:
$A = 3000 \times (1.20)^2 = 3000 \times 1.44 = 4320$

Q18. A sum of Rs.7,200 is invested at 10% compound interest. Find the amount after 2 years.

Answer: Rs.8,712
Explanation:
$A = 7200 \times (1.10)^2 = 7200 \times 1.21$
$A = 8712$

Q19. Find the compound interest on Rs.6,250 for 2 years at 4%.

Answer: Rs.510
Explanation:
$A = 6250 \times (1.04)^2$
$(1.04)^2 = 1.0816$
$A = 6250 \times 1.0816 = 6760$
$CI = 6760 - 6250 = 510$

Q20. Find the amount on Rs.9,600 for 2 years at 25% compound interest.

Answer: Rs.15,000

Explanation:

$A = 9600 \times (1.25)^2$

$(1.25)^2 = 1.5625$

$A = 9600 \times 1.5625 = 15000$