

# Maharashtra Board Solutions Class 8-Maths (Practice Set 14.1): Chapter 14- Compound Interest



For any clarifications or questions you can write to [info@indcareer.com](mailto:info@indcareer.com)

## Postal Address

IndCareer.com, 52, Shilpa Nagar, Somalwada Nagpur - 440015  
Maharashtra, India

**WhatsApp:** +91 9561 204 888, **Website:** <https://www.indcareer.com>

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# Maharashtra Board Solutions Class 8-Maths

## (Practice Set 14.1): Chapter 14- Compound Interest

Class 8: Maths Chapter 14 solutions. Complete Class 8 Maths Chapter 14 Notes.

### Maharashtra Board Solutions Class 8-Maths (Practice Set 14.1): Chapter 14- Compound Interest

Maharashtra Board 8th Maths Chapter 14, Class 8 Maths Chapter 14 solutions

#### Question 1.

Find the amount and the compound interest.

| No   | Principal (Rs) | Rate (p.c.p.a.) | Duration (years) |
|------|----------------|-----------------|------------------|
| i.   | 2000           | 5               | 2                |
| ii.  | 5000           | 8               | 3                |
| iii. | 4000           | 7.5             | 2                |

#### Solution:

i. Here  $P = \text{Rs } 2000$ ,  $R = 5 \text{ p.c.p.a.}$  and  $N = 2 \text{ years}$

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$$\begin{aligned}A &= P \left[ 1 + \frac{R}{100} \right]^N \\&= 2000 \left[ 1 + \frac{5}{100} \right]^2 \\&= 2000 \left[ \frac{100 + 5}{100} \right]^2 \\&= 2000 \left[ \frac{105}{100} \right]^2 \\&= 2000 \left[ \frac{21 \times 5}{20 \times 5} \right]^2 \\&= 2000 \left[ \frac{21}{20} \right]^2 \\&= 2000 \left[ \frac{441}{400} \right]\end{aligned}$$

$$= 5 \times 441$$

$$\therefore A = \text{Rs } 2205$$

$$I = \text{Amount (A)} - \text{Principal (P)}$$

$$= 2205 - 2000$$

$$= \text{Rs } 205$$

$\therefore$  The amount is Rs 2205 and the compound interest is Rs 205.

ii. Here,  $P = \text{Rs } 5000$ ,  $R = 8 \text{ p.c.p.a.}$  and  $N = 3 \text{ years}$

$$\begin{aligned}A &= P \left[ 1 + \frac{R}{100} \right]^N \\&= 5000 \left[ 1 + \frac{8}{100} \right]^3 \\&= 5000 \left[ \frac{100+8}{100} \right]^3 \\&= 5000 \left[ \frac{108}{100} \right]^3 = 5000 \left[ \frac{27 \times 4}{25 \times 4} \right]^3 \\&= 5000 \left[ \frac{27}{25} \right]^3 \\&= 5000 \times \frac{27}{25} \times \frac{27}{25} \times \frac{27}{25} \\&= \frac{8}{25} \times 27 \times 27 \times 27 = 0.32 \times 19683\end{aligned}$$

$$\therefore A = \text{Rs } 6298.56$$

I = Amount (A) – Principal (P)

$$= 6298.56 - 5000$$

$$= \text{Rs } 1298.56$$

$\therefore$  The amount is Rs 6298.56 and the compound interest is Rs 1298.56.

iii. Here, P = Rs 4000, R = 7.5 p.c.p.a. and N = 2 years

$$\begin{aligned}A &= P \left[ 1 + \frac{R}{100} \right]^N \\&= 4000 \left[ 1 + \frac{7.5}{100} \right]^2 \\&= 4000 \left[ 1 + \frac{75}{1000} \right]^2 \\&= 4000 \left[ \frac{1000 + 75}{1000} \right]^2 \\&= 4000 \left[ \frac{1075}{1000} \right]^2 = 4000 \left[ \frac{43 \times 25}{40 \times 25} \right]^2 \\&= 4000 \left[ \frac{43}{40} \right]^2 \\&= 4000 \times \frac{43}{40} \times \frac{43}{40} = 2.5 \times 43 \times 43\end{aligned}$$

$$\therefore A = \text{Rs } 4622.50$$

$$I = \text{Amount (A)} - \text{Principal (P)}$$

$$= 4622.50 - 4000$$

$$= \text{Rs } 622.50$$

$\therefore$  The amount is Rs 4622.50 and the compound interest is Rs 622.50.

### Question 2.

Sameerrao has taken a loan of Rs 12500 at the rate of 12 p.c.p.a. for 3 years. If the interest is compounded annually then how many rupees should he pay to clear his loan?

**Solution:**

Here,  $P = \text{Rs } 12,500$ ,  $R = 12 \text{ p.c.p.a.}$  and

$N = 3 \text{ years}$

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$$\begin{aligned}A &= P \left[ 1 + \frac{R}{100} \right]^N \\&= 12500 \left[ 1 + \frac{12}{100} \right]^3 \\&= 12500 \left[ \frac{100+12}{100} \right]^3 \\&= 12500 \left[ \frac{112}{100} \right]^3 \\&= 12500 \left[ \frac{28 \times 4}{25 \times 4} \right]^3 \\&= 12500 \left[ \frac{28}{25} \right]^3 \\&= 12500 \times \frac{28}{25} \times \frac{28}{25} \times \frac{28}{25} \\&= \frac{20}{25} \times 28 \times 28 \times 28\end{aligned}$$

$$= 0.8 \times 28 \times 28 \times 28$$

$$= \text{Rs } 17,561.60$$

Sameerrao should pay Rs 17,561.60 to clear his loan.

### Question 3.

To start a business Shalaka has taken a loan of Rs 8000 at a rate of 1012 p.c.p.a. After two years how much compound interest will she have to pay?

**Solution:**

Here, P = Rs 8000, N = 2 years and

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$$R = 10\frac{1}{2}\% = \frac{21}{2}\% = 10.5 \text{ p.c.p.a.}$$

$$\begin{aligned} A &= P \left[ 1 + \frac{R}{100} \right]^N \\ &= 8000 \left[ 1 + \frac{10.5}{100} \right]^2 \\ &= 8000 \left[ 1 + \frac{105}{1000} \right]^2 \\ &= 8000 \left[ \frac{1000 + 105}{1000} \right]^2 \\ &= 8000 \left[ \frac{1105}{1000} \right]^2 \\ &= 8000 \left[ \frac{221 \times 5}{200 \times 5} \right]^2 \\ &= 8000 \left[ \frac{221}{200} \right]^2 \\ &= 8000 \times \frac{221}{200} \times \frac{221}{200} \\ &= \frac{1}{5} \times 221 \times 221 \\ &= 0.2 \times 48,841 \\ &= ₹ 9768.20 \end{aligned}$$

$I = \text{Amount (A)} - \text{Principal (P)}$

$$= 9768.20 - 8000$$

$$= \text{Rs } 1768.20$$

∴ After two years Shalaka will have to pay Rs 1768.20 as compound interest.

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The Maharashtra State Board of Secondary and Higher Secondary Education or MSBSHSE (Marathi: महाराष्ट्र राज्य माध्यमिक आणि उच्च माध्यमिक शिक्षण मंडळ), is an **autonomous and statutory body established in 1965**. The board was amended in the year 1977 under the provisions of the Maharashtra Act No. 41 of 1965.

The Maharashtra State Board of Secondary & Higher Secondary Education (MSBSHSE), Pune is an independent body of the Maharashtra Government. There are more than 1.4 million students that appear in the examination every year. The Maha State Board conducts the board examination twice a year. This board conducts the examination for SSC and HSC.

The Maharashtra government established the Maharashtra State Bureau of Textbook Production and Curriculum Research, also commonly referred to as Ebalbharati, in 1967 to take up the responsibility of providing quality textbooks to students from all classes studying under the Maharashtra State Board. MSBHSE prepares and updates the curriculum to provide holistic development for students. It is designed to tackle the difficulty in understanding the concepts with simple language with simple illustrations. Every year around 10 lakh students are enrolled in schools that are affiliated with the Maharashtra State Board.

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As of now, the MSCERT and Balbharti are responsible for the syllabus and textbooks of Classes 1 to 8, while Classes 9 and 10 are under the Maharashtra State Board of Secondary and Higher Secondary Education (MSBSHSE).

How many state boards are there in Maharashtra?

The Maharashtra State Board of Secondary & Higher Secondary Education, conducts the HSC and SSC Examinations in the state of Maharashtra through its nine Divisional Boards located at Pune, Mumbai, Aurangabad, Nasik, Kolhapur, Amravati, Latur, Nagpur and Ratnagiri.

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52, Shilpa Nagar,  
Somalwada  
Nagpur - 440015  
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