LF LearnFrenzy

QUANTITATIVE APTITUDE · FREE STUDY MATERIAL

Banker's Discount

Formulas & Shortcut Tricks

Every important formula, shortcut and exam trick for Banker's Discount in one place – with solved examples, common mistakes and a one-page revision sheet.

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USEFUL FOR

- Bank PO & Clerk (IBPS, SBI, RBI)
- SSC CGL / CHSL
- Railways (RRB NTPC)
- Campus placements (TCS, Infosys, Wipro, Accenture)
- UPSC CSAT & state PSC exams

Practise **Banker's Discount** free on LearnFrenzy – questions with instant explanations →

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1 Topic introduction

What it is, why it matters and how it is asked

A bill of exchange promises to pay a sum (its face value) on a future date. If the holder needs money earlier, a bank pays for the bill now but deducts interest on the full face value for the unexpired time. This deduction is the banker's discount (BD); the money paid is the proceeds.

True discount (TD) is interest on the present worth, so BD is always a little more than TD. The difference is the banker's gain (BG), and it equals the interest on the TD. Exams link BD, TD, BG and face value, and ask about bill dates with three days of grace.

Why it matters in exams

- Bank exams ask it with True Discount.
- A few relations answer almost every question.
- Date questions reward careful day counting.

Where it is used

- Banks discounting trade bills.
- Businesses raising cash before a payment is due.
- Comparing the true cost of short-term loans.

Common question patterns

Banker's discount
SI on face value for the unexpired time.

Proceeds
Face value − BD.

Banker's gain
BD − TD = interest on TD.

Face value
BD × TD ÷ (BD − TD).

TD from BG
$TD^2 = PW \times BG$.

Rate and time
Find r or t from BD or BG.

Bills of exchange
Legally due date and days charged.

Effective rate
The banker's real return on proceeds.

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2 Important formulas

Cards marked MOST USED are the ones to revise first

Banker's discount and proceeds

Banker's discount

MOST USED

BD = F × r × t/100 (simple interest on the face value)

The bank charges interest on the whole face value.

F – face value **r** – rate % p.a. **t** – unexpired time in years

EXAMPLE ₹2,600 for 6 months at 8% → BD = 2,600 × 8 × ½/100 = **₹104**.

Proceeds

Proceeds = F – BD

The money the holder actually receives.

EXAMPLE ₹2,600 – ₹104 = **₹2,496**.

True discount (for comparison)

TD = F × rt/(100 + rt)

TD is interest on PW; BD is interest on F.

EXAMPLE Same bill (rt = 4) → TD = 2,600 × 4/104 = **₹100**.

Banker's gain

Banker's gain

MOST USED

BG = BD – TD = SI on TD = TD × rt/100

The extra the bank gets over the true discount.

EXAMPLE BD 104, TD 100 → BG = **₹4** (= 100 × 4/100).

TD from PW and BG

MOST USED

$TD^2 = PW \times BG$; $TD = \sqrt{(PW \times BG)}$

Learn this one – it appears often.

EXAMPLE PW 2,500, BG 4 → TD = $\sqrt{10,000}$ = **₹100**.

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Face value from BD and TD

MOST USED

$$F = BD \times TD/(BD - TD) = BD \times TD/BG$$

Same shape as "sum = SI × TD ÷ (SI − TD)".

EXAMPLE BD 104, TD 100 → F = 10,400/4 = **₹2,600**.

TD from BG

$$TD = BG \times 100/(rt)$$

Reverse of "BG = SI on TD".

EXAMPLE BG 4, rt = 4 → TD = **₹100**.

Bills of exchange

Legally due date

MOST USED

$$\text{Legally due date} = \text{nominal due date} + 3 \text{ days of grace}$$

Days charged: leave out the day of discount, count the legally due date.

EXAMPLE Drawn 5 January 2026 at 3 months → nominally 5 April, legally due **8 April**.

Banker's effective rate

$$\text{Effective rate} = BD \times 100/(\text{proceeds} \times t)$$

The bank lends only the proceeds but earns BD.

EXAMPLE BD 104 on proceeds 2,496 for ½ year → 10,400/1,248 = **8⅓%**.

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3 Shortcut tricks & smart techniques

Each trick says when to use it – that matters as much as the trick

BD, TD and BG as fractions of F

MOST USED

USE WHEN rt is a friendly number.

rt	BD = F ×	TD = F ×	BD : TD
4	1/25	1/26	26 : 25
5	1/20	1/21	21 : 20
10	1/10	1/11	11 : 10
20	1/5	1/6	6 : 5

EXAMPLE F ₹6,600, rt = 10 → BD 660, TD 600 → BG **₹60**.

Counting the days

MOST USED

USE WHEN A bill is discounted on a given date.

1. Find the legally due date (+3 days).
2. Leave out the day of discount; count the due date. Then t = days/365.

EXAMPLE Discounted 17 February 2026, legally due 8 April → 11 + 31 + 8 = **50 days**.

BD and BG given

USE WHEN Only BD and BG (or TD) are given.

1. TD = BD − BG.
2. F = BD × TD/BG.

EXAMPLE BD ₹165, BG ₹15 → TD 150 → F = 165 × 150/15 = **₹1,650**.

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4 Solved examples

The full method on the left, the exam shortcut on the right

1 BANKER'S DISCOUNT

Find the banker's discount on a bill of ₹7,300 due in 146 days at 10% per annum.

STEP BY STEP

1. t = 146/365 = 0.4 year.
2. BD = 7,300 × 10 × 0.4/100.
3. = ₹292.

SHORTCUT

146 days = 2/5 year → 730 × 2/5.

Why it works: BD is interest on the face value.

Answer: ₹292

2 PROCEEDS

A bill of ₹12,000 due in 9 months is discounted at 10% per annum. Find the proceeds.

STEP BY STEP

1. BD = 12,000 × 10 × ¾/100 = ₹900.
2. Proceeds = 12,000 − 900 = ₹11,100.

SHORTCUT

rt = 7.5 → F × 92.5%.

Why it works: Trap: using TD (₹837.21) instead of BD.

Answer: ₹11,100

3 BD, TD AND BG

Find BD, TD and BG on a bill of ₹3,060 due in 8 months at 3% per annum.

STEP BY STEP

1. rt = 3 × 8/12 = 2.
2. BD = 3,060 × 2/100 = ₹61.20.
3. TD = 3,060 × 2/102 = ₹60.
4. BG = 61.20 − 60 = ₹1.20.

SHORTCUT

BG = SI on TD = 60 × 2% = 1.20.

Why it works: Finding rt first makes all three quick.

Answer: BD ₹61.20, TD ₹60, BG ₹1.20

4 FACE VALUE

The banker's discount and the true discount on a bill are ₹72 and ₹60. Find the face value.

STEP BY STEP

1. BG = 72 − 60 = ₹12.
2. F = BD × TD/BG = 72 × 60/12.
3. = ₹360.

SHORTCUT

4,320/12.

Why it works: BG is the interest on TD.

Answer: ₹360

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5 BD FROM TD

The true discount on a bill due in 1 year at 6% per annum is ₹500. Find the banker's discount.

STEP BY STEP

1. BG = SI on TD = 500 × 6/100 = ₹30.
2. BD = TD + BG = ₹530.

SHORTCUT

BD = TD × (1 + rt/100) = 500 × 1.06.

Why it works: BD : TD = (100 + rt) : 100.

Answer: ₹530

6 FACE VALUE FROM BG

The banker's gain on a bill due in 2 years at 5% per annum is ₹24. Find the face value.

STEP BY STEP

1. rt = 10.
2. TD = BG × 100/rt = ₹240.
3. F = TD × (100 + rt)/rt = 240 × 110/10 = ₹2,640.

SHORTCUT

BD = 264, TD = 240 → F = 264 × 240/24.

Why it works: Go BG → TD → F.

Answer: ₹2,640

7 RATE

The banker's discount on ₹4,000 due in 9 months is ₹240. Find the rate of interest.

STEP BY STEP

1. 240 = 4,000 × r × ¾/100.
2. 240 = 30r.
3. r = 8%.

SHORTCUT

r = 24,000/3,000.

Why it works: BD is simple interest on F.

Answer: 8%

8 TIME

The banker's discount and true discount on a bill at 10% per annum are ₹396 and ₹360. Find the time.

STEP BY STEP

1. BG = 396 − 360 = ₹36.
2. BG = SI on TD: 36 = 360 × 10 × t/100.
3. t = 1 year.

SHORTCUT

rt = 100 × BG/TD = 10 → t = 1.

Why it works: Use BG = TD × rt/100.

Answer: 1 year

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9 BILL OF EXCHANGE

A bill for ₹7,300 drawn on 10 March 2026 at 4 months is discounted on 23 May 2026 at 10% per annum. Find the banker's discount.

STEP BY STEP

1. Nominally due 10 July; legally due 13 July.
2. Days: May 8 + June 30 + July 13 = 51.
3. BD = 7,300 × 10 × 51/36,500 = ₹102.

SHORTCUT

7,300/365 = 20 → 20 × 10 × 51/100.

Why it works: Trap: forgetting the 3 days of grace (48 days → ₹96).

Answer: ₹102

10 EFFECTIVE RATE

A bank discounts a bill due in 1 year at 10% per annum. What rate of interest does it actually earn?

STEP BY STEP

1. On F = ₹100: BD = ₹10, proceeds = ₹90.
2. The bank earns ₹10 on ₹90 for 1 year.
3. Rate = 10/90 × 100 = 11.11%.

SHORTCUT

r/(100 − rt) × 100.

Why it works: The bank lends only the proceeds.

Answer: 100/9% ≈ 11.11%

11 PW AND BG

The true discount on a bill is ₹120 and its present worth is ₹1,440. Find the banker's discount.

STEP BY STEP

1. BG = TD^2/PW = 14,400/1,440 = ₹10.
2. BD = TD + BG = ₹130.

SHORTCUT

TD/PW = 1/12 → BG = 120/12.

Why it works: TD^2 = PW × BG.

Answer: ₹130

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5 Important exam tips

Patterns, traps and habits that save marks

Frequently asked question patterns

- BD and proceeds of a bill.
- BD, TD and BG together.
- Face value from BD and TD.
- TD from PW and BG.
- Rate or time from BD or BG.
- Bills with days of grace.
- Banker's effective rate.

Common mistakes to avoid

- Giving TD where BD is asked.
- Forgetting the 3 days of grace.
- Counting to the nominal due date.
- Counting both the day of discount and the due date.
- Using months as years.
- Taking BG as interest on BD.

Points to remember

- BD = SI on F.
- BG = BD − TD = SI on TD.
- $TD^2 = PW \times BG$.
- $F = BD \cdot TD/(BD - TD)$.
- Legal due = nominal + 3 days.

Speed and accuracy

- Find rt first.
- Use BD : TD = (100 + rt) : 100.
- Divide F by 365 first in date questions.
- Use the fraction table for friendly rt.

Preparation strategy

- Finish True Discount first – BD builds on it.
- Practise on LearnFrenzy in order: Easy → Medium → Hard → Exam Pattern Mix → Data Sufficiency.
- Aim for 45–60 seconds per question.
- Keep an error log of day-counting slips.
- Read the Quick Revision Sheet (next page) the night before the exam.

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6 Quick revision sheet

Everything on one page for the night before the exam

Formulas

Banker's discount	**F × r × t/100**	Proceeds	**F – BD**
True discount	**F·rt/(100 + rt)**	Banker's gain	**BD – TD**
BG	**SI on TD = TD·rt/100**	TD^2	**PW × BG**
Face value	**BD·TD/(BD – TD)**	TD from BG	**BG × 100/rt**
BD from TD	**TD(100 + rt)/100**	Effective rate	**BD × 100/(proceeds × t)**
Legally due date	**nominal + 3 days**		

Shortcut tricks

BD : TD = (100 + rt) : 100.

rt = 10 → BD F/10, TD F/11.

TD = BD – BG.

Leave out the discount day.

Count the legally due date.

F ÷ 365 first for days.

Must-know numbers

Days in months	Jan 31 · Feb 28 (29 leap) · Mar 31 · Apr 30 · May 31 · Jun 30 · Jul 31 · Aug 31 · Sep 30 · Oct 31 · Nov 30 · Dec 31
Easy days	73 days = 1/5 year · 146 days = 2/5 · 219 days = 3/5 · 292 days = 4/5

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7 A message from LearnFrenzy

For everyone preparing for placements, competitive and government exams

Keep going – you are closer than you think

Success in examinations is not just about how many hours you study. It is about how effectively you understand concepts, practise questions, and improve yourself every day.

Every formula you learn, every problem you solve, and every mistake you correct brings you one step closer to your goal.

Whether you are preparing for campus placements, competitive examinations, or government jobs, remember that consistency, confidence, and smart preparation make a real difference.

Don't just memorize formulas. Understand the concepts, practise smart techniques, and develop the confidence to solve problems independently.

Your hard work today can create the opportunities you dream of tomorrow.

— Team LearnFrenzy

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