

# Cost of Credit and Loans

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 24

## Q Quick Review

Borrowing money is convenient, but it is not free — you pay it back with **interest**, the cost of using someone else's money. With an **installment loan** you make equal monthly payments, so the **total cost** is (monthly payment)  $\times$  (number of months), and the **interest you pay** is total cost — amount borrowed. A **credit card** charges interest each month on any unpaid balance; the **APR** (annual percentage rate) divided by 12 gives the monthly rate. The lesson is simple: the longer you take to pay, the more interest piles up, so paying sooner saves money.

◇ **Example:** A \$1,200 loan is repaid in 12 monthly payments of \$110. Find the total cost and the interest paid.  
 $\Rightarrow$  Start with the total cost — that's every payment added up:  $\$110 \times 12 = \$1,320$ . That is what leaves your pocket. The **interest** is the extra you paid beyond what you borrowed, so subtract the loan amount:  $\$1,320 - \$1,200 = \$120$ . So this loan cost \$120 in interest — the price of spreading the payments over a year.

**Answer:** Total \$1,320; interest \$120

## PRACTICE

Find the total cost, interest paid, or monthly charge as asked.

- |                                                   |       |                                                     |       |
|---------------------------------------------------|-------|-----------------------------------------------------|-------|
| 1. \$2,000 loan, \$180/mo $\times$ 12; total cost | _____ | 12. \$800 loan, \$75/mo $\times$ 12; interest       | _____ |
| 2. \$2,000 loan, \$180/mo $\times$ 12; interest   | _____ | 13. \$5,000 loan, \$230/mo $\times$ 24; total cost  | _____ |
| 3. \$500 loan, \$90/mo $\times$ 6; total cost     | _____ | 14. \$5,000 loan, \$230/mo $\times$ 24; interest    | _____ |
| 4. \$500 loan, \$90/mo $\times$ 6; interest       | _____ | 15. \$2,400 loan, \$220/mo $\times$ 12; interest    | _____ |
| 5. \$3,000 loan, \$280/mo $\times$ 12; total cost | _____ | 16. \$10,000 loan, \$320/mo $\times$ 36; interest   | _____ |
| 6. \$3,000 loan, \$280/mo $\times$ 12; interest   | _____ | 17. Min. payment: 2% of a \$400 balance             | _____ |
| 7. \$1,000 loan, \$95/mo $\times$ 12; total cost  | _____ | 18. One month interest: \$1,000 balance, 18% APR    | _____ |
| 8. \$1,000 loan, \$95/mo $\times$ 12; interest    | _____ | 19. One month interest: \$600 balance, 24% APR      | _____ |
| 9. \$1,500 loan, \$140/mo $\times$ 12; total cost | _____ | 20. One month interest: \$300 balance, 1.5% monthly | _____ |
| 10. \$1,500 loan, \$140/mo $\times$ 12; interest  | _____ |                                                     |       |
| 11. \$800 loan, \$75/mo $\times$ 12; total cost   | _____ |                                                     |       |

## ◆ Word Problems

21. Sofia borrows \$1,800 for a used scooter and repays it in 15 monthly payments of \$150. How much interest does she pay in all?  
 \_\_\_\_\_
22. Jordan has a \$1,000 credit card balance at 18% APR. If he makes no new charges and pays nothing for one month, how much interest is added?  
 \_\_\_\_\_
23. A \$3,000 loan can be repaid as \$280/month for 12 months, or \$160/month for 24 months. How much more interest does the longer plan cost?  
 \_\_\_\_\_
24. Aisha's credit card charges 24% APR. She carries a \$600 balance for 3 months without paying it down. About how much interest does she owe, ignoring compounding?  
 \_\_\_\_\_



## Answer Keys

- |            |                |
|------------|----------------|
| 1. \$2,160 | 13. \$5,520    |
| 2. \$160   | 14. \$520      |
| 3. \$540   | 15. \$240      |
| 4. \$40    | 16. \$1,520    |
| 5. \$3,360 | 17. \$8.00     |
| 6. \$360   | 18. \$15.00    |
| 7. \$1,140 | 19. \$12.00    |
| 8. \$140   | 20. \$4.50     |
| 9. \$1,680 | 21. \$450      |
| 10. \$180  | 22. \$15       |
| 11. \$900  | 23. \$480 more |
| 12. \$100  | 24. \$36       |

### Step-by-Step Explanations

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| <p>1. Total cost is all the payments: <math>180 \times 12 = 2160</math>.</p> <p>2. Interest is total minus borrowed: <math>2160 - 2000 = 160</math>.</p> <p>3. <math>90 \times 6 = 540</math> paid in all.</p> <p>4. <math>540 - 500 = 40</math> in interest.</p> <p>5. <math>280 \times 12 = 3360</math>.</p> <p>6. <math>3360 - 3000 = 360</math>.</p> <p>7. <math>95 \times 12 = 1140</math>.</p> <p>8. <math>1140 - 1000 = 140</math>.</p> <p>9. <math>140 \times 12 = 1680</math>.</p> <p>10. <math>1680 - 1500 = 180</math>.</p> <p>11. <math>75 \times 12 = 900</math>.</p> <p>12. <math>900 - 800 = 100</math>.</p> <p>13. <math>230 \times 24 = 5520</math>.</p> <p>14. <math>5520 - 5000 = 520</math>.</p> | <p>15. Total <math>220 \times 12 = 2640</math>, so interest = <math>2640 - 2400 = 240</math>.</p> <p>16. Total <math>320 \times 36 = 11520</math>, so interest = <math>11520 - 10000 = 1520</math>.</p> <p>17. 2% of 400 is <math>400 \times 0.02 = 8</math>.</p> <p>18. Monthly rate is <math>\frac{18\%}{12} = 1.5\%</math>, so <math>1000 \times 0.015 = 15</math>.</p> <p>19. Monthly rate is <math>\frac{24\%}{12} = 2\%</math>, so <math>600 \times 0.02 = 12</math>.</p> <p>20. The monthly rate is already given: <math>300 \times 0.015 = 4.50</math>.</p> <p>21. Total paid is <math>150 \times 15 = \\$2,250</math>. The interest is the extra above the loan: <math>2250 - 1800 = \\$450</math>.</p> <p>22. The monthly rate is <math>\frac{18\%}{12} = 1.5\%</math>. One month of interest is <math>1000 \times 0.015 = \\$15</math>.</p> <p>23. Short plan total: <math>280 \times 12 = \\$3,360</math>, interest \$360. Long plan total: <math>160 \times 24 = \\$3,840</math>, interest \$840. The difference is <math>840 - 360 = \\$480</math>.</p> <p>24. The monthly rate is <math>\frac{24\%}{12} = 2\%</math>, so each month adds <math>600 \times 0.02 = \\$12</math>. Over 3 months that is <math>12 \times 3 = \\$36</math>.</p> |
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