

Compound Interest Example 01

| | |
|----------------------|------------|
| Principal | \$ 200,000 |
| Annual interest rate | 12% |

Date borrowed January 1, 2006

Annual Compounding

| Year | Principal | Annual interest rate | Interest expense | | Cumulative interest | Principal + Cumulative interest |
|------|------------|----------------------|------------------|------|---------------------|---------------------------------|
| 2006 | \$ 200,000 | 12% | \$ 24,000 | (*1) | \$ 24,000 | \$ 224,000 |
| 2007 | \$ 200,000 | 12% | \$ 26,880 | (*2) | \$ 50,880 | \$ 250,880 |
| 2008 | \$ 200,000 | 12% | \$ 30,106 | (*3) | \$ 80,986 | \$ 280,986 |

(*1) $\$200,000 \times 12\%$

(*2) $(\$200,000 + \$24,000) \times 12\%$

(*3) $(\$200,000 + \$24,000 + \$26,880) \times 12\%$

Semi-annual Compounding

| Year | Principal | Annual interest rate | Interest expense | | Cumulative interest | Principal + Cumulative interest |
|-----------------|------------|----------------------|------------------|------|---------------------|---------------------------------|
| 1/1-6/30, 2006 | \$ 200,000 | 6% | \$ 12,000 | (*4) | \$ 12,000 | \$ 212,000 |
| 7/1-12/31, 2006 | \$ 200,000 | 6% | \$ 12,720 | (*5) | \$ 24,720 | \$ 224,720 |
| 1/1-6/30, 2007 | \$ 200,000 | 6% | \$ 13,483 | (*6) | \$ 38,203 | \$ 238,203 |
| 7/1-12/31, 2007 | \$ 200,000 | 6% | \$ 14,292 | | \$ 52,495 | \$ 252,495 |
| 1/1-6/30, 2008 | \$ 200,000 | 6% | \$ 15,150 | | \$ 67,645 | \$ 267,645 |
| 7/1-12/31, 2008 | \$ 200,000 | 6% | \$ 16,059 | | \$ 83,704 | \$ 283,704 |

(*4) $\$200,000 \times 6\%$

(*5) $(\$200,000 + \$12,000) \times 6\%$

(*6) $(\$200,000 + \$12,000 + \$12,720) \times 6\%$

Quarterly Compounding

| Year | Principal | Annual interest rate | Interest expense | | Cumulative interest | Principal + Cumulative interest |
|----------|------------|----------------------|------------------|------|---------------------|---------------------------------|
| Q1, 2006 | \$ 200,000 | 3% | \$ 6,000 | (*7) | \$ 6,000 | \$ 206,000 |
| Q2, 2006 | \$ 200,000 | 3% | \$ 6,180 | (*8) | \$ 12,180 | \$ 212,180 |
| Q3, 2006 | \$ 200,000 | 3% | \$ 6,365 | (*9) | \$ 18,545 | \$ 218,545 |
| Q4, 2006 | \$ 200,000 | 3% | \$ 6,556 | | \$ 25,102 | \$ 225,102 |
| Q1, 2007 | \$ 200,000 | 3% | \$ 6,753 | | \$ 31,855 | \$ 231,855 |
| Q2, 2007 | \$ 200,000 | 3% | \$ 6,956 | | \$ 38,810 | \$ 238,810 |
| Q3, 2007 | \$ 200,000 | 3% | \$ 7,164 | | \$ 45,975 | \$ 245,975 |
| Q4, 2007 | \$ 200,000 | 3% | \$ 7,379 | | \$ 53,354 | \$ 253,354 |
| Q1, 2008 | \$ 200,000 | 3% | \$ 7,601 | | \$ 60,955 | \$ 260,955 |
| Q2, 2008 | \$ 200,000 | 3% | \$ 7,829 | | \$ 68,783 | \$ 268,783 |
| Q3, 2008 | \$ 200,000 | 3% | \$ 8,063 | | \$ 76,847 | \$ 276,847 |
| Q4, 2008 | \$ 200,000 | 3% | \$ 8,305 | | \$ 85,152 | \$ 285,152 |

(*7) $\$200,000 \times 3\%$

(*8) $(\$200,000 + \$6,000) \times 3\%$

(*9) $(\$200,000 + \$6,000 + \$6,180) \times 3\%$