

Compound Interest Example 02

| | |
|----------------------|-----------|
| Principal | \$ 80,000 |
| Annual interest rate | 6% |

Date borrowed January 1, 2006

Annual Compounding

| Year | Principal | Annual interest rate | Interest expense | | Cumulative interest | Principal + Cumulative interest |
|------|-----------|----------------------|------------------|------|---------------------|---------------------------------|
| 2006 | \$ 80,000 | 6% | \$ 4,800 | (*1) | \$ 4,800 | \$ 84,800 |
| 2007 | \$ 80,000 | 6% | \$ 5,088 | (*2) | \$ 9,888 | \$ 89,888 |
| 2008 | \$ 80,000 | 6% | \$ 5,393 | (*3) | \$ 15,281 | \$ 95,281 |

(*1) $\$80,000 \times 6\%$

(*2) $(\$80,000 + \$4,800) \times 6\%$

(*3) $(\$80,000 + \$4,800 + \$5,088) \times 6\%$

Semi-annual Compounding

| Year | Principal | Annual interest rate | Interest expense | | Cumulative interest | Principal + Cumulative interest |
|-----------------|-----------|----------------------|------------------|------|---------------------|---------------------------------|
| 1/1-6/30, 2006 | \$ 80,000 | 3% | \$ 2,400 | (*4) | \$ 2,400 | \$ 82,400 |
| 7/1-12/31, 2006 | \$ 80,000 | 3% | \$ 2,472 | (*5) | \$ 4,872 | \$ 84,872 |
| 1/1-6/30, 2007 | \$ 80,000 | 3% | \$ 2,546 | (*6) | \$ 7,418 | \$ 87,418 |
| 7/1-12/31, 2007 | \$ 80,000 | 3% | \$ 2,623 | | \$ 10,041 | \$ 90,041 |
| 1/1-6/30, 2008 | \$ 80,000 | 3% | \$ 2,701 | | \$ 12,742 | \$ 92,742 |
| 7/1-12/31, 2008 | \$ 80,000 | 3% | \$ 2,782 | | \$ 15,524 | \$ 95,524 |

(*4) $\$80,000 \times 3\%$

(*5) $(\$80,000 + \$2,400) \times 3\%$

(*6) $(\$80,000 + \$2,400 + \$2,472) \times 3\%$

Quarterly Compounding

| Year | Principal | Annual interest rate | Interest expense | | Cumulative interest | Principal + Cumulative interest |
|----------|-----------|----------------------|------------------|------|---------------------|---------------------------------|
| Q1, 2006 | \$ 80,000 | 1.5% | \$ 1,200 | (*7) | \$ 1,200 | \$ 81,200 |
| Q2, 2006 | \$ 80,000 | 1.5% | \$ 1,218 | (*8) | \$ 2,418 | \$ 82,418 |
| Q3, 2006 | \$ 80,000 | 1.5% | \$ 1,236 | (*9) | \$ 3,654 | \$ 83,654 |
| Q4, 2006 | \$ 80,000 | 1.5% | \$ 1,255 | | \$ 4,909 | \$ 84,909 |
| Q1, 2007 | \$ 80,000 | 1.5% | \$ 1,274 | | \$ 6,183 | \$ 86,183 |
| Q2, 2007 | \$ 80,000 | 1.5% | \$ 1,293 | | \$ 7,475 | \$ 87,475 |
| Q3, 2007 | \$ 80,000 | 1.5% | \$ 1,312 | | \$ 8,788 | \$ 88,788 |
| Q4, 2007 | \$ 80,000 | 1.5% | \$ 1,332 | | \$ 10,119 | \$ 90,119 |
| Q1, 2008 | \$ 80,000 | 1.5% | \$ 1,352 | | \$ 11,471 | \$ 91,471 |
| Q2, 2008 | \$ 80,000 | 1.5% | \$ 1,372 | | \$ 12,843 | \$ 92,843 |
| Q3, 2008 | \$ 80,000 | 1.5% | \$ 1,393 | | \$ 14,236 | \$ 94,236 |
| Q4, 2008 | \$ 80,000 | 1.5% | \$ 1,414 | | \$ 15,649 | \$ 95,649 |

(*7) $\$80,000 \times 1.5\%$

(*8) $(\$80,000 + \$1,200) \times 1.5\%$

(*9) $(\$80,000 + \$1,200 + \$1,218) \times 1.5\%$