WORKSHEET

Compound interest table

Final amount of an investment of \$1: $\left(1 + \frac{r}{100}\right)^n$

Compound interest tables are used by accountants and financial advisers to quickly calculate the future value of a principal that is earning compound interest.
The following table shows the final balance when \$1 is invested at various interest rates and terms.

Number of periods n	Interest rate per compounding period, r								
	1%	3%	4%	5%	6%	8%	10%	15%	20%
1	1.010	1.030	1.040	1.050	1.060	1.080	1.100	1.150	1.200
2	1.020	1.061	1.082	1.103	1.124	1.166	1.210	1.323	1.440
3	1.030	1.093	1.125	1.158	1.191	1.260	1.331	1.521	1.728
4	1.041	1.126	1.170	1.216	1.262	1.360	1.464	1.749	2.074
5	1.051	1.159	1.217	1.276	1.338	1.469	1.611	2.011	2.488
6	1.062	1.194	1.265	1.340	1.419	1.587	1.772	2.313	2.986
7	1.072	1.230	1.316	1.407	1.504	1.714	1.949	2.660	3.583
8	1.083	1.267	1.369	1.477	1.594	1.851	2.144	3.059	4.300
9	1.094	1.305	1.423	1.551	1.689	1.999	2.358	3.518	5.160
10	1.105	1.344	1.480	1.629	1.791	2.159	2.594	4.046	6.192
11	1.116	1.384	1.539	1.710	1.898	2.332	2.853	4.652	7.430
12	1.127	1.426	1.601	1.796	2.012	2.518	3.138	5.350	8.916

Each value in the table gives the value of an investment of \$1 when invested for n time periods at an interest rate of r% per period. So, for example, the value in row 9 and the 10% column tells us that \$1 will grow to \$2.358 if invested for 9 years at 10% p.a. compounding annually.

Example 1

1 Use the table above to find the final amount when:

a \$2000 is invested at 8% p.a. for 5 years.

Solution

Look up in table: $r = 8\%$ and $n = 5$

$\therefore A = \$1.469$

$\therefore$ For \$2000, $A = 2000 \times \$1.469$

$= \$2938$

$\therefore$ Final balance is \$2938.

Example 2

b \$11 000 is invested for 4 years at 12% p.a. compounded six-monthly.

Solution

4 years $= 6 \times 8$ months

12% p.a. means 6% per six months

$\therefore$ Look up in table: $r = 6\%$ and $n = 8$

$\therefore A = \$1.594$

$\therefore$ For \$11 000, $A = 11\,000 \times \$1.594$

$= \$17\,534$

$\therefore$ Final balance is \$17 534.

1 Use the table above to find the final amount of each of the following investments.

a \$2400 at 8% p.a. for 12 years

b \$6500 at 3% p.a. for 5 years

c \$8750 at 15% p.a. for 4 years

d \$11 000 at 6% p.a. for 10 years

e \$7024 at 20% p.a. for 2 years

f \$16 250 at 4% per month for 12 months

g \$13 700 at 5% per month for 8 months

h $21 600 at 12% p.a. compounded monthly for 7 months

i $8020 at 12% p.a. compounded quarterly for 2 years

j $9785 at 10% p.a. compounded half-yearly for 3 years

2 How long will it take a principal to double its value if it is invested at 6% p.a. compound interest? Answer to the nearest year.

3 Use the table to find the compound interest earned on each of the following investments.

a $17 800 at 4% p.a. for 9 years

b $30 400 at 1% p.a. for 11 years

c $8960 at 15% p.a. for 8 years

d $5225 at 10% p.a. for 7 years

e $9150 at 3% p.a. for 2 years

f $25 140 at 6% per month for 3 months

g $6340 at 3% per month for 1 year

h $11 200 at 8% per quarter for 2 years

i $49 000 at 36% p.a. compounded monthly for 4 months

j $18 330 at 4% p.a. compounded quarterly for 1 year

Answers

1 **a** $6043.20
b $7533.50
c $15 303.75
d $19 701
e $10 114.56
f $26 016.25
g $20 234.90
h $23 155.20
i $10 161.34
j $13 111.90

2 12 years

3 **a** $7529.40
b $3526.40
c $18 448.64
d $4958.53
e $588.15
f $4801.74
g $2700.84
h $9531.20
i $6174
j $751.53