

Key.

Name: _____

Period: _____

Compound Interest Worksheet

In problems 1-3, compare the amount you have if the money were compounded annually versus quarterly. Write out and solve 2 equations per problem

1. \$5,000 at 10% for 5 years

$$5000 \left(1 + \frac{0.1}{1}\right)^5$$

$$\boxed{\$8052.55}$$

$$5000 \left(1 + \frac{0.1}{4}\right)^{(4)(5)}$$

$$\boxed{\$8193.0822}$$

2. \$2,000 at 12% for 3 years

$$2000 \left(1 + \frac{0.12}{1}\right)^3$$

$$\boxed{\$2809.856}$$

$$2000 \left(1 + \frac{0.12}{4}\right)^{(3)(4)}$$

$$\boxed{\$2851.5218}$$

3. \$1,000 at 14% for 30 years

$$1000 \left(1 + \frac{0.14}{1}\right)^{30}$$

$$\boxed{\$50950.15858}$$

$$1000 \left(1 + \frac{0.14}{4}\right)^{(4)(30)}$$

$$\boxed{\$62064.31624}$$

In problems 4-6, compare the amount of money you have if the investment is compounded annually versus daily. Write out and calculate 2 equations per problem

4. \$1,000 at 8% for 5 years

$$1000 \left(1 + \frac{0.08}{1}\right)^5$$

$$\boxed{\$1469.328077}$$

$$1000 \left(1 + \frac{0.08}{365}\right)^{(365)(5)}$$

$$\boxed{\$1491.759314}$$

5. \$2,000 at 12% for 3 years

$$2000 \left(1 + \frac{0.12}{1}\right)^3$$

$$\boxed{\$2809.856}$$

$$2000 \left(1 + \frac{0.12}{365}\right)^{(3)(365)}$$

$$\boxed{\$2866.489228}$$

6. \$5,000 at 7% for 20 years

$$5000 \left(1 + \frac{0.07}{1}\right)^{20}$$

$$\boxed{\$19348.42231}$$

$$5000 \left(1 + \frac{0.07}{365}\right)^{(365)(20)}$$

$$\boxed{\$20273.27838}$$

Answer the questions in problems 7-9.

7. What is the future amount of \$12,000 invested for 5 years at 4% compounded **monthly**?

$$12000 \left(1 + \frac{0.04}{12}\right)^{(12)(5)} = \boxed{\$14651.95913}$$

8. What is the future amount of \$800 invested for 1 year at 6% compounded **daily**?

$$800 \left(1 + \frac{0.06}{365}\right)^{(365)} = \boxed{\$849.47}$$

9. If \$5,000 is compounded quarterly at 5% for 12 years, what is the total interest (money made) received at the end of that time?

$$A = 5000 \left(1 + \frac{0.05}{4}\right)^{(4)(12)} = 9076.77$$

$$I = A - P = 9076.77 - 5000 = \boxed{4076.77\$}$$