

## Section 6.4 Simple and Compound Interest

### Section 6.4 Practice Exercises

1.(a) simple; principal

(b)  $I = Prt$

(c) compound

(d)  $A = P\left(1 + \frac{r}{n}\right)^{n-t}$

3.  $2.25\% = 2.25 \times 0.01 = 0.0225$

5. Decrease in price =  $79 - 59 = \$20$

$$\begin{aligned}\text{Percent decrease in price} &= \frac{20}{79} \times 100\% \\ &= 0.253 \times 100\% \\ &= 25.3\%\end{aligned}$$

7.  $I = Prt = (\$6000)(0.05)(3) = \$300(3)$   
 $= \$900$

$$\$6000 + \$900 = \$6900$$

9.  $I = Prt = (\$5050)(0.06)(4) = \$303(4)$   
 $= \$1212$

$$\$5050 + \$1212 = \$6262$$

11.  $I = Prt = (\$12,000)(0.04)\left(4\frac{1}{2}\right)$   
 $= \$480(4.5) = \$2160$

$$\$12,000 + \$2160 = \$14,160$$

13.  $I = Prt = (\$10,500)(0.045)(4)$   
 $= \$472.50(4) = \$1890$

$$\$10,500 + \$1890 = \$12,390$$

15.(a)  $I = Prt = (\$2500)(0.035)(4)$   
 $= \$87.50(4) = \$350$

(b)  $\$2500 + \$350 = \$2850$

17.(a)  $I = Prt = (\$400)(0.08)(1.5) = \$32(1.5)$   
 $= \$48$

(b)  $\$400 + \$48 = \$448$

19.  $I = Prt = (\$10,300)(0.04)(5) = \$412(5)$   
 $= \$2060$

$$\$10,300 + \$2060 = \$12,360$$

21.  $I = Prt = (\$4500)(0.10)(2.5) = \$450(2.5)$   
 $= \$1125$   
 $\$4500 + \$1125 = \$5625$

25. There are  $12(2) = 24$  total compounding periods.

23. There are  $2(3) = 6$  total compounding periods.

27.(a)  $I = Prt = \$500(0.04)(3) = \$20(3) = \$60$   
 $\$500 + \$60 = \$560$

(b)

Year	Interest	Total
1	$(\$500)(0.04) = \$20$	$\$500 + \$20 = \$520$
2	$(\$520)(0.04) = \$20.80$	$\$520 + \$20.80 = \$540.80$
3	$(\$540.80)(0.04) = \$21.63$	$\$540.80 + \$21.63 = \$562.43$

29.(a)  $I = Prt = \$24,000(0.05)(2) = \$1200(2) = \$2400$   
 $\$24,000 + \$2400 = \$26,400$

(b)

Period	Interest	Total
1st	$(\$24,000)(0.05)(0.5) = \$600$	$\$24,000 + \$600 = \$24,600$
2nd	$(\$24,600)(0.05)(0.5) = \$615$	$\$24,600 + \$615 = \$25,215$
3rd	$(\$25,215)(0.05)(0.5) = \$630.38$	$\$25,215 + \$630.38 = \$25,845.38$
4th	$(\$25,845.38)(0.05)(0.5) =$ $\$646.13$	$\$25,845.38 + \$646.13 = \$26,491.51$

31.  $A$  = total amount in the account;  
 $P$  = principal;  
 $r$  = annual interest rate;  
 $n$  = number of compounding periods per year;  
 $t$  = time in years

35.  $A = \$6000 \left(1 + \frac{0.05}{2}\right)^{2 \cdot 2} \approx \$6622.88$

37.  $A = \$10,000 \left(1 + \frac{0.06}{4}\right)^{4 \cdot 1.5} \approx \$10,934.43$

39.  $A = \$14,000 \left(1 + \frac{0.045}{12}\right)^{12 \cdot 3} \approx \$16,019.47$

33.  $A = \$5000 \left(1 + \frac{0.045}{1}\right)^{1 \cdot 5} \approx \$6230.91$