Solve All questions

Each problem gives three of the four quantities in I = Prt. Identify which one is missing before you start.

1

A credit union lends $8,400 at 6.5% simple interest for 8 months. How much interest is owed at maturity?

Answer: P=$8400I=8400x0.065x8/12=$364

2

$22,000 is invested at 4.25% for 146 days. The instrument uses a 365-day year. Find the interest earned.

Answer: I=22000x0.425x146/365=$374

3

A deposit of $5,750 earns 9% simple interest for 2½ years. Find the interest and the maturity value.

Answer: I=5750x0.09x2.5=$ 1,293.75

Maturity=$5750+$1293.75=$7,043.75

4

A loan at 7% simple interest for 15 months generated $630 in interest. What was the principal?

Answer: P=630/(0.07)(15/12)=$7,200

5

An account grew to $9,579.50 after 9 months at 5.5% simple interest. How much was originally deposited?

Answer: P= 9579.50/1+(0.055)(9/12)

P=9579.50/1.04125= $9,200

6

$12,000 earned $450 in interest over 180 days. Find the annual simple interest rate.

Answer: r= 450/12000x180/365=

r=0.0760417=7.60%

7

$3,500 accumulated to $3,720.50 in 14 months. What annual rate of simple interest was earned?

Answer: I= 3720.50-3500=220.50

r=220.50/3500x14/12=5.4%

8

How many days will it take $6,000 to earn $160 in interest at 8%?

Answer: t=160/6000(.08)=1/3 year

t=1/3(365)=121.67

t=around 122 days

9

A borrower paid $652.50 in interest on a $14,500 loan carrying 6% simple interest. For how many months was the loan outstanding?

Answer: t=652.50/14500(0.06)=.75 year

t= .75(12)= 9 months

10

A $45,000 loan runs at 7.2% for 200 days. Compute the interest on a 360-day basis and again on a 365-day basis, and state how much the convention is worth to the lender.

BFace value, discount and proceeds

In these problems the rate is applied to face value and deducted in advance, so the borrower never receives the full amount printed on the note.

Answer: 360 day basis: I= 45000(.072)(200/360)= $1,800

365 day basis: I= 45000(.072)(200/365)= $1,775.34

$24.66 additional interest to the lender on 360 day convension

11

A note with a face value of $24,000 is discounted at 8% for 120 days. Find the discount and the proceeds.

Answer: D=24000(0.08)(120/360)= $640

Proceeds: 24000-640= $23,360

12

Find the discount and proceeds on a $9,600 note discounted at 6.5% for 75 days.

Answer: D= 9600(0.065)(75/360)=$130

Proceeds: 9600-130= $9,470

13

A business needs $18,000 in cash today and will sign a 180-day note discounted at 7%. What face value must the note carry?

Answer: 18000=F [1-(0.07)(180/360)]

18000=F (0.965)

F=18000/0.965=$18,652.85

14

A $30,000 note discounted for 90 days produced proceeds of $29,475. What discount rate was used?

Answer: D= 30000-29475= 525

525=30000(d)(90/360)

525=7500d

d= 0.07

Answer: 7%

15

The discount on a $16,000 note at 9% amounted to $360. For how many days was the note discounted?

Answer: $360 = 16000(0.09)(d/360)$

$360 = 1440(d/360)$

$d = 90$ days