

1009) loan = \$1000

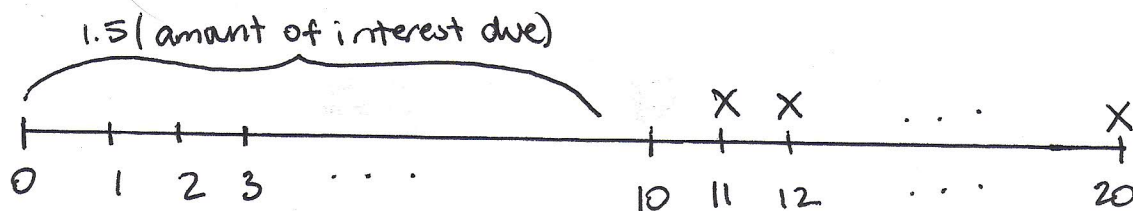
No. of payments: 20 at End of yr

1st 10 payments = 1.5 (amount of interest due)

Last 10 payments = X

$$i = 0.10$$

Find X.



Principal left at time 1 = 1000

$$\text{Principal left at time 2} = 1000 - 0.1(0.5)(1000) = 950 = 1000(.95)$$

$$\text{Principal left at time 3} = 950 - 0.1(0.5)(950) = 902.50 = 1000(.95^2)$$

$$\text{Principal left at time 11} = 1000(.95)^{10}$$

(interest due) 150%

$$\text{at time 1} = 1.5(0.1)1000 = 150$$

$$\text{at time 2} = 1.5(0.1)(1000)(.95) = 142.5$$

$$\text{at time 3} = 1.5(0.1)(1000)(.95)^2 = 135.37$$

PV principal amt at $t=10$ = PV₁₀ pmts left at $t=10$

$$1000(.95)^{10} = X a_{\overline{10}|.1}$$

$$598.74 = X \left(\frac{1-v^{10}}{0.1} \right)$$

$$\boxed{X = 97.4417}$$

D

remember:

$$a_{\overline{n}|i} = v + v^2 + \dots + v^n = \frac{1-v^n}{i}$$