

**2018 Spring Math 0320**  
**Prof Alvarez and Prof Perez**  
**www.alvarezmathhelp.com**

**Learning Communities Shared Assignment (One is not Seven)**

**Student name \_\_\_\_\_ date 06-16-18000**

**A \$1000 visa credit card at 24% for only 30 years will have a \$20.01 minimum payment per month.**

**$f(X) = \$1000 - 1.11X^2$  amount owed after X years**

**$g(X) = \$20.01(12)X$  amount paid in monthly payments**

1 find  $f(0), f(1), f(2), f(3), f(4), f(5), f(10), f(15), f(20), f(25), f(30), g(0), g(4), g(30)$

2 find  $(f(30) - f(20)) / (30 - 20)$  average rate of change =

3 graph  $f(X)$   $X_{min} = 0, X_{max} = 30, Y_{min} = -10$  and  $Y_{max} = 1000$ .

4 graph  $f(X)$  and  $g(X)$  on same page  $X_{min} = 0, X_{max} = 30, Y_{min} = -10$  and  $Y_{max} = 8000$ .

5 Find  $f(0) - f(4)$  amount you paid on the credit card after 4 years

6 if  $g(X) = 1000$  then find X.

7 solve  $1000 - 1.11X^2 = 510.49$

8 solve  $999 - 1.11X^2 = 0$  by factoring

9 solve  $-1.11X^2 + 1000 = 20.01(12)X$  by the quadratic formula

10  $R(X) = (100 - 5X)(\$500 + \$50X)$  find the max of grandma's

apartments if for every \$50 increase in rent 5 apartments

will become empty. graph  $X=0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10$

$X_{min}=0, X_{max}=12, Y_{min}=-1, Y_{max}=60000$

11  $M(X) = \$2000X + \$4000$  find  $M(10)$  tuition at the private university

12 graph  $C(X) = \$60000 - \$3.06X^2$  student loan of \$60000 with \$600 monthly payments  $X=0, 12, 24, 36, 48, 60, 72, 84, 96, 108, 120, 132, 140$ .

$X_{min} = 0, X_{max} = 140, Y_{min} = -10, Y_{max} = 60000$

Remember credit cards are your friends and one is not seven.

$$f(x) = 1000 - 1.11x^2$$



$$f(0) = 1000 - 1.11(0)^2$$

$$f(0) = 1000 - 1.11(0)(0)$$

$$f(0) = 1000 - 1.11(0)$$

$$f(0) = 1000 - 0$$

$$f(0) = \$1000$$

amount you owe after 0 years

$$f(1) = 1000 - 1.11(1)^2$$

$$f(1) = 1000 - 1.11(1)(1)$$

$$f(1) = 1000 - 1.11(1)$$

$$f(1) = 1000 - 1.11$$

$$f(1) = \$998.89$$

amount you owe after 1 year

$$f(x) = 1000 - 1.11x^2$$

$$f(2) = 1000 - 1.11(2)^2$$

$$f(2) = 1000 - 1.11(2)(2)$$

$$f(2) = 1000 - 1.11(4)$$

$$f(2) = 1000 - 4.44$$

$$f(2) = \$995.56$$

~~Amount you owe after 2 years~~

$$f(3) = 1000 - 1.11(3)^2$$

$$f(3) = 1000 - 1.11(3)(3)$$

$$f(3) = 1000 - 1.11(9)$$

$$f(3) = 1000 - 9.99$$

$$f(3) = \$990.01$$

~~Amount you owe after 3 years~~

$$f(x) = 1000 - 1.11x^2$$

$$f(4) = 1000 - 1.11(4)^2$$

$$f(4) = 1000 - 1.11(4)(4)$$

$$f(4) = 1000 - 1.11(16)$$

$$f(4) = 1000 - 17.76$$

$$f(4) = \$982.24$$

Amount you owe after 4 years

$$f(5) = 1000 - 1.11(5)^2$$

$$f(5) = 1000 - 1.11(5)(5)$$

$$f(5) = 1000 - 1.11(25)$$

$$f(5) = 1000 - 27.75$$

$$f(5) = \$972.25$$

Amount you owe after 5 years



$$F(x) = 1000 - 1.11x^2$$

$$F(10) = 1000 - 1.11(10)^2$$

$$F(10) = 1000 - 1.11(10)(10)$$

$$F(10) = 1000 - 1.11(100)$$

$$F(10) = 1000 - 111$$

$$F(10) = \$889.00$$

~~Amount you owe after 10 years~~

$$F(15) = 1000 - 1.11(15)^2$$

$$F(15) = 1000 - 1.11(15)(15)$$

$$F(15) = 1000 - 1.11(225)$$

$$F(15) = 1000 - 249.75$$

$$F(15) = \$750.25$$

Amount you owe after 15 years

$$f(x) = 1000 - 1.11x^2$$

$$f(20) = 1000 - 1.11(20)^2$$

$$f(20) = 1000 - 1.11(20)(20)$$

$$f(20) = 1000 - 1.11(400)$$

$$f(20) = 1000 - 444$$

$$f(20) = \$556.00$$

~~Amount you owe after 20 YEARS,~~

$$f(25) = 1000 - 1.11(25)^2$$

$$f(25) = 1000 - 1.11(25)(25)$$

$$f(25) = 1000 - 1.11(625)$$

$$f(25) = 1000 - 693.75$$

$$f(25) = \$306.25$$

Amount you owe after 25 YEARS

$$f(x) = 1000 - 1.11x^2$$

$$f(30) = 1000 - 1.11(30)^2$$

$$f(30) = 1000 - 1.11(30)(30)$$

$$f(30) = 1000 - 1.11(900)$$

$$f(30) = 1000 - 999$$

$$f(30) = \$1.00$$

Amount you owe after 30 YEAR,

$$g(t) = 20.01(12)(t)$$

$$g(x) = 20.01(12)x$$

$$g(0) = 0$$

$$g(4) = 20.01(12)(4)$$

$$g(4) = 960.48$$

$$g(30) = 20.01(12)(30)$$

$$g(30) = 7203.60$$

$$f(x) = 1000 - 1.11x^2$$

2.

$$\frac{f(30) - f(20)}{(30) - (20)} = \text{Average Rate of Change}$$

$$\frac{(1000 - 1.11(30)^2) - (1000 - 1.11(20)^2)}{(30) - (20)} =$$

$$\frac{(1000 - 1.11(30)(30)) - (1000 - 1.11(20)(20))}{(30) - (20)} =$$

$$\frac{(1000 - 1.11(900)) - (1000 - 1.11(400))}{(30) - (20)} =$$

$$\frac{(1000 - 999) - (1000 - 444)}{(30) - (20)} =$$

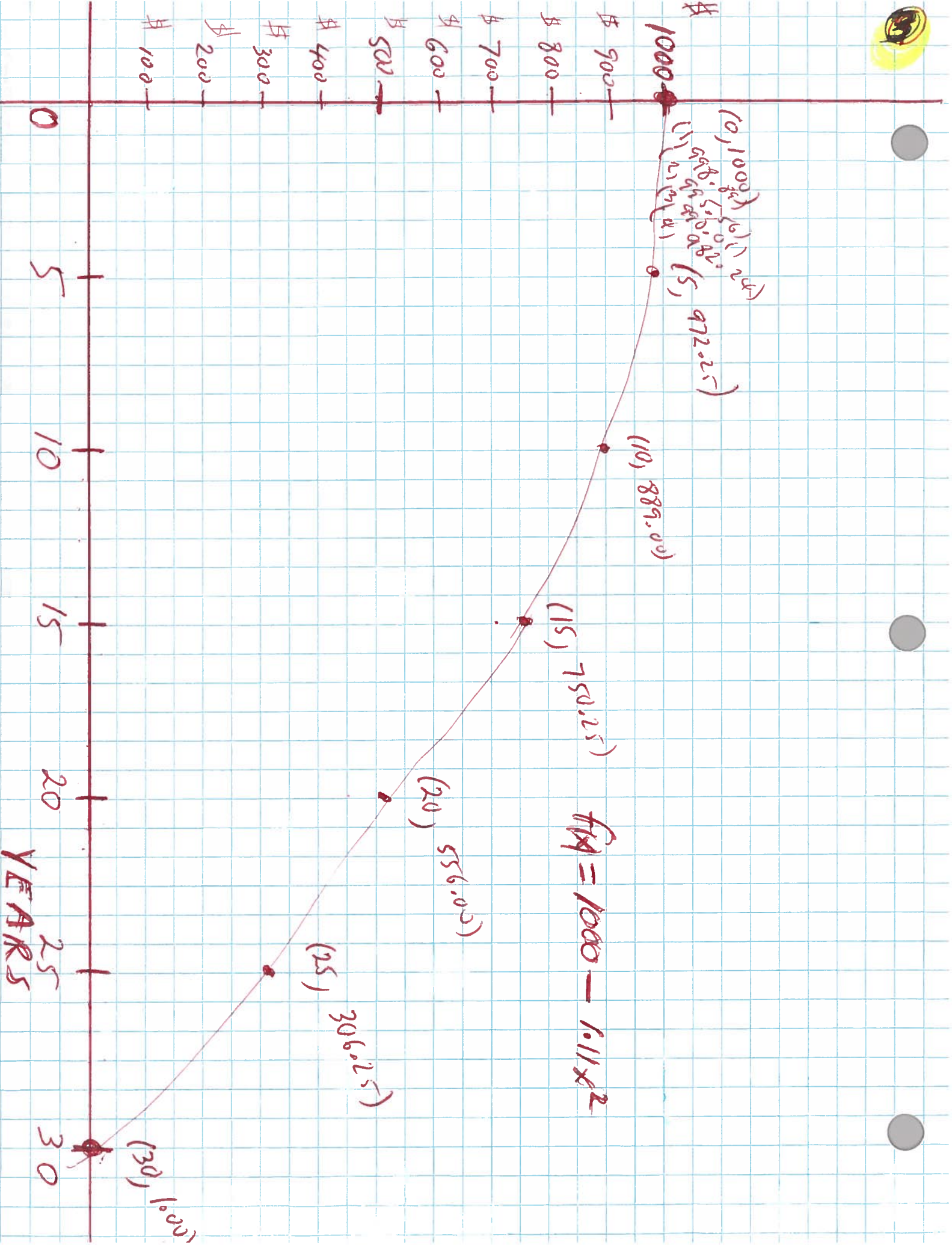
$$\frac{(1.00) - (556.00)}{(30) - (20)} =$$

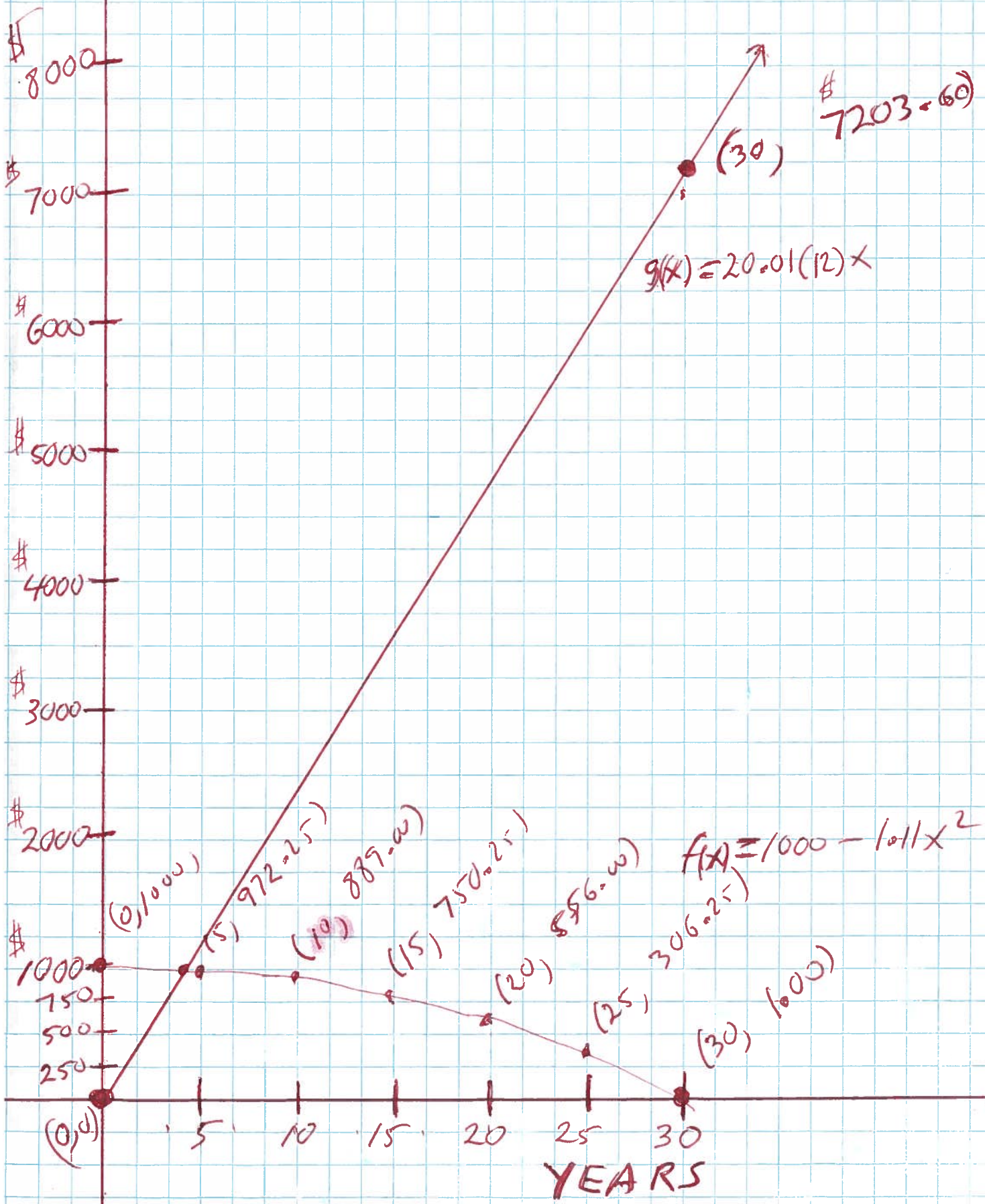
$$\frac{1.00 - 556.00}{30 - 20} =$$

$$\frac{-555}{10} =$$

$$-\$55.50$$







$$\textcircled{50} \quad f(x) = 1000 - 1.11x^2$$

$$\text{find } f(0) - f(4) =$$

$$(1000 - 1.11(0)^2) - (1000 - 1.11(4)^2) =$$

$$(1000 - 1.11(0)(0)) - (1000 - 1.11(4)(4)) =$$

$$(1000 - 1.11(0)) - (1000 - 1.11(16)) =$$

$$(1000 - 0) - (1000 - 17.76) =$$

$$(1000) - (982.24) =$$

$$1000 - 982.24 =$$

$$\textcircled{\$17.76 =}$$

Amount you paid on the Credit Card  
after 4 years.

6.

$$g(x) = 20.01(12)^x$$

if  $g(x) = 1000$  then find  $x$

set  $20.01(12)^x = 1000$

$$240.12^x = 1000$$

$$\frac{240.12^x}{240.12} = \frac{1000}{240.12}$$

$$x = 4.164584374$$

YEARS

4.164584374 years to give  
\$1000 to the credit card.

7

$$1000 - 1.11x^2 = 510.49$$

$$\cancel{1000} - 1.11x^2 - \cancel{1000} = 510.49 - 1000$$
$$-1.11x^2 = -489.51$$

$$\frac{-\cancel{1.11}x^2}{-\cancel{1.11}} = \frac{-489.51}{-1.11}$$

$$x^2 = 441$$

$$\sqrt{x^2} = \sqrt{441}$$

$$x = 21$$

YEARS

21 years to have a balance of  
\$510.49 on your credit card

8. Solve by factoring

$$999 - 1.11x^2 = 0$$

$$1.11(900 - x^2) = 0 \quad \text{factor}$$

$$1.11((30)^2 - (x)^2) = 0$$

$$1.11(30+x)(30-x) = 0$$

formula

$$a^2 - b^2 = (a+b)(a-b)$$

let

$$1.11 \neq 0 \quad \text{OR} \quad 30+x=0 \quad \text{OR} \quad 30-x=0$$

$$\cancel{30}+x-\cancel{30}=0-30 \quad \text{OR} \quad \cancel{30}-x-\cancel{30}=0-30$$

$$x = -30$$

$$\text{OR} \quad -x = -30$$

$$\text{OR} \quad \frac{-x}{-1} = \frac{-30}{-1}$$

OR

$$x = 30$$

$$\{-30, 30\}$$



Soln use Quadratic formula

$$-1.11x^2 + 1000 = 20.01(12)x$$

$$-1.11x^2 + 1000 = 240.12x$$

$$-1.11x^2 + 1000 - 240.12x = 240.12x - 240.12x$$

$$-1.11x^2 - 240.12x + 1000 = \text{○} \text{ Rewrite}$$

$$a = -1.11, b = -240.12, c = 1000$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-240.12) \pm \sqrt{(-240.12)^2 - 4(-1.11)(1000)}}{2(-1.11)}$$

$$x = \frac{240.12 \pm \sqrt{57657.6144 + 4440}}{-2.22}$$

$$x = \frac{240.12 \pm \sqrt{62097.6144}}{-2.22}$$

$$x = \frac{240.12 \pm 249.1939293}{-2.22}$$

$$x = \frac{240.12 - 249.1939293}{-2.22} \text{ OR } x = \frac{240.12 + 249.1939293}{-2.22}$$

$$x = \frac{-9.0739293}{-2.22} \text{ OR } x = \frac{489.3139293}{-2.22}$$

$$x = 4.08735554 \text{ OR } x = -220.4116799$$

$$\{ 4.08735554 \quad -220.4116799 \}$$

TO Break Even  $\uparrow$  YEARS

10.

$$R(x) = (100 - 5x)(500 + 50x)$$

$$R(x) = 50000 + 5000x - 2500x - 250x^2$$

$$R(x) = 50000 + 2500x - 250x^2$$

$$R(x) = -250x^2 + 2500x + 50000$$

$$a = -250, \quad b = 2500, \quad c = 50000$$

To find the max find the Vertex

$$\text{Vertex} = \left( -\frac{b}{2a}, f\left(-\frac{b}{2a}\right) \right)$$

$$\text{Vertex} = \left( -\frac{(2500)}{2(-250)}, f\left(-\frac{(2500)}{2(-250)}\right) \right)$$

$$\text{Vertex} = \left( \frac{-2500}{-500}, f\left(\frac{2500}{-500}\right) \right)$$

$$\text{Vertex} = (5, f(5))$$

$$\text{Vertex} = (5, -250(5)^2 + 2500(5) + 50000)$$

$$\text{Vertex} = (5, -250(5)(5) + 2500(5) + 50000)$$

$$\text{Vertex} = (5, -250(25) + 2500(5) + 50000)$$



$$\text{Vertex} = (5, -6250 + 12500 + 50000)$$

$$\text{Vertex} = (5, 6250 + 50000)$$

$$\text{Vertex} = (5, \overset{\$}{56250})$$

Max

$$R(x) = (100 - 5x)(500 + 50x) \quad \text{Original formula}$$

$$R(5) = (100 - 5(5))(500 + 50(5))$$

$$R(5) = (100 - 25)(500 + 250)$$

$$R(5) = (75)(750)$$

$$R(5) = \$56,250$$

Max

75 apartments full at <sup>\$</sup>750 each will generate the Max profit of \$56,250

$$R(x) = (100 - 5x)(500 + 50x)$$

$$R(0) = (100 - 5(0))(500 + 50(0))$$

$$R(0) = (100 - 0)(500 + 0)$$

$$R(0) = (100)(500)$$

$$R(0) = \$50,000$$

$$R(1) = (100 - 5(1))(500 + 50(1))$$

$$R(1) = (100 - 5)(500 + 50)$$

$$R(1) = (95)(550)$$

$$R(1) = \$52,250$$

$$R(2) = (100 - 5(2))(500 + 50(2))$$

$$R(2) = (100 - 10)(500 + 100)$$

$$R(2) = (90)(600)$$

$$R(2) = \$54,000$$

$$R(x) = (100 - 5x)(500 + 50x)$$

$$R(3) = (100 - 5(3))(500 + 50(3))$$

$$R(3) = (100 - 15)(500 + 150)$$

$$R(3) = (85)(650)$$

$$R(3) = \$55,250$$

$$R(4) = (100 - 5(4))(500 + 50(4))$$

$$R(4) = (100 - 20)(500 + 200)$$

$$R(4) = (80)(700)$$

$$R(4) = \$56,000$$

$$R(5) = (100 - 5(5))(500 + 50(5))$$

$$R(5) = (100 - 25)(500 + 250)$$

$$R(5) = (75)(750)$$

$$R(5) = \$56,250$$

$$R(x) = (100 - 5x)(500 + 50x)$$

$$R(6) = (100 - 5(6))(500 + 50(6))$$

$$R(6) = (100 - 30)(500 + 300)$$

$$R(6) = (70)(800)$$

$$R(6) = \$56,000$$

$$R(7) = (100 - 5(7))(500 + 50(7))$$

$$R(7) = (100 - 35)(500 + 350)$$

$$R(7) = (65)(850)$$

$$R(7) = \$55,250$$

$$R(8) = (100 - 5(8))(500 + 50(8))$$

$$R(8) = (100 - 40)(500 + 400)$$

$$R(8) = (60)(900)$$

$$R(8) = \$54,000$$

$$R(x) = (100 - 5x)(500 + 50x)$$

$$R(9) = (100 - 5(9))(500 + 50(9))$$

$$R(9) = (100 - 45)(500 + 450)$$

$$R(9) = (55)(950)$$

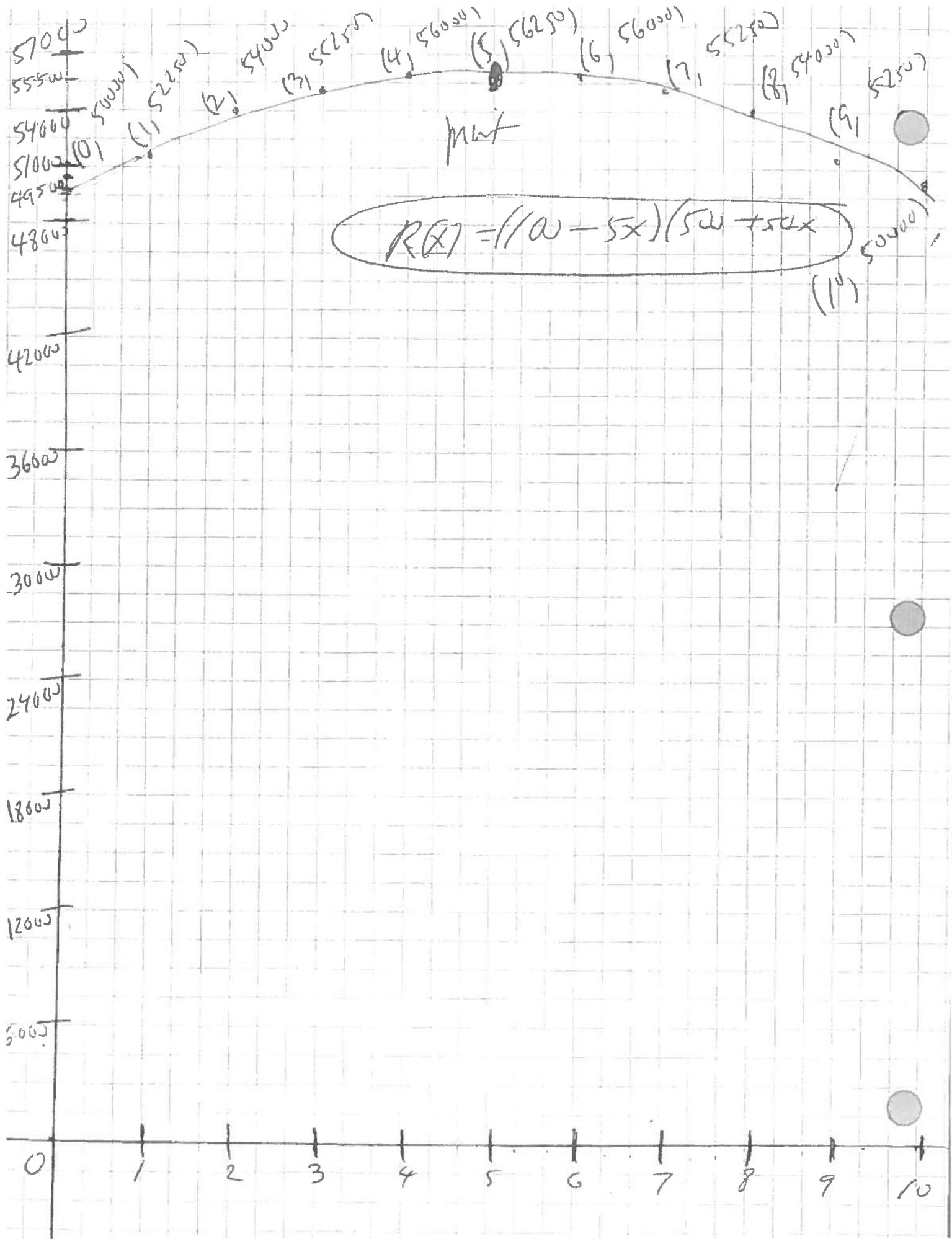
$$R(9) = \$52,250$$

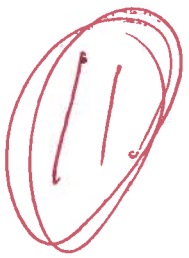
$$R(10) = (100 - 5(10))(500 + 50(10))$$

$$R(10) = (100 - 50)(500 + 500)$$

$$R(10) = (50)(1000)$$

$$R(10) = \$50,000$$





$$M(x) = 2000x + 4000 \text{ Find } M(10)$$

$$M(10) = 2000(10) + 4000$$

$$M(10) = 20,000 + 4,000$$

$$M(10) = \$24,000$$

Tuition for 10 hours at  
a private University

12

$$C(x) = 60000 - 3.06x^2$$

$$C(0) = 60000 - 3.06(0)^2$$

$$C(0) = 60000 - 3.06(0)(0)$$

$$C(0) = 60000 - 3.06(0)$$

$$C(0) = 60000 - 0$$

$$C(0) = \$60,000$$

amount you owe after 0 months

$$C(12) = 60000 - 3.06(12)^2$$

$$C(12) = 60000 - 3.06(12)(12)$$

$$C(12) = 60000 - 3.06(144)$$

$$C(12) = 60000 - 440.64$$

$$C(12) = \$59,559.36$$

amount you owe after 12 months

$$C(24) = 60000 - 3.06(24)^2$$

$$C(24) = 60000 - 3.06(24)(24)$$

$$C(24) = 60000 - 3.06(576)$$

$$C(24) = 60000 - 1762.56$$

$$C(24) = \$58,237.44$$

amount you owe after 24 months



$$C(x) = 60000 - 3.06x^2$$

$$C(36) = 60000 - 3.06(36)^2$$

$$C(36) = 60000 - 3.06(36)(36)$$

$$C(36) = 60000 - 3.06(1296)$$

$$C(36) = 60000 - 3965.76$$

$$C(36) = \$56,034.24$$

Amount you owe after 36 months,

$$C(48) = 60000 - 3.06(48)^2$$

$$C(48) = 60000 - 3.06(48)(48)$$

$$C(48) = 60000 - 3.06(2304)$$

$$C(48) = 60000 - 7050.24$$

$$C(48) = \$52,949.76$$

Amount you owe after 48 months,

$$C(60) = 60000 - 3.06(60)^2$$

$$C(60) = 60000 - 3.06(60)(60)$$

$$C(60) = 60000 - 3.06(3600)$$

$$C(60) = 60000 - 11016.00$$

$$C(60) = \$48,984.00$$

Amount you owe after 60 months

$$C(X) = 60000 - 3.06X^2$$

$$C(72) = 60000 - 3.06(72)^2$$

$$C(72) = 60000 - 3.06(72)(72)$$

$$C(72) = 60000 - 3.06(5184)$$

$$C(72) = 60000 - 15863.04$$

$$C(72) = \$44,136.96$$

amount you owe after 72 months

$$C(84) = 60000 - 3.06(84)^2$$

$$C(84) = 60000 - 3.06(84)(84)$$

$$C(84) = 60000 - 3.06(7056)$$

$$C(84) = 60000 - 21591.36$$

$$C(84) = \$38,408.64$$

amount you owe after 84 months,

$$C(96) = 60000 - 3.06(96)^2$$

$$C(96) = 60000 - 3.06(96)(96)$$

$$C(96) = 60000 - 3.06(9216)$$

$$C(96) = 60000 - 28200.96$$

$$C(96) = \$31,799.04$$

amount you owe after 96 months

$$C(x) = 60000 - 3.06x^2$$

$$C(108) = 60000 - 3.06(108)^2$$

$$C(108) = 60000 - 3.06(108)(108)$$

$$C(108) = 60000 - 3.06(11664)$$

$$C(108) = 60000 - 35691.84$$

$$C(108) = \$24,308.16$$

~~amount you owe after 108 months,~~

$$C(120) = 60000 - 3.06(120)^2$$

$$C(120) = 60000 - 3.06(120)(120)$$

$$C(120) = 60000 - 3.06(14400)$$

$$C(120) = 60000 - 44064$$

$$C(120) = \$15,936.00$$

~~amount you owe after 120 months~~

$$C(132) = 60000 - 3.06(132)^2$$

$$C(132) = 60000 - 3.06(132)(132)$$

$$C(132) = 60000 - 3.06(17424)$$

$$C(132) = 60000 - 53317.44$$

$$C(132) = \$6,682.56$$

amount you owe after 132 months

$$C(x) = 60000 - 3.06x^2$$

$$C(140) = 60000 - 3.06(140)^2$$

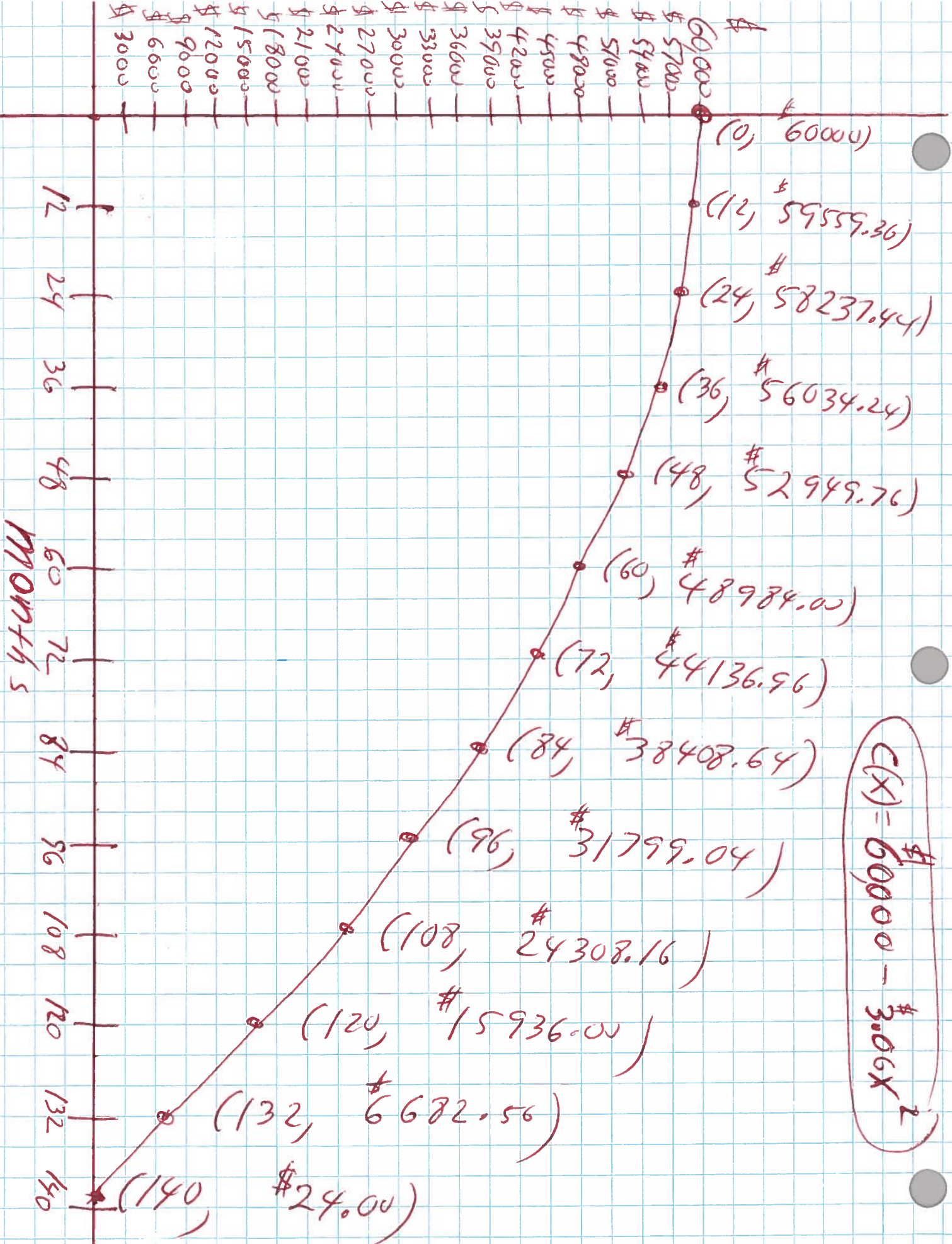
$$C(140) = 60000 - 3.06(140)(140)$$

$$C(140) = 60000 - 3.06(19600)$$

$$C(140) = 60000 - 59976$$

$$C(140) = \overset{\$}{24.00}$$

Amount you owe after 140 months



$$C(x) = \$60,000 - 3.06x^2$$



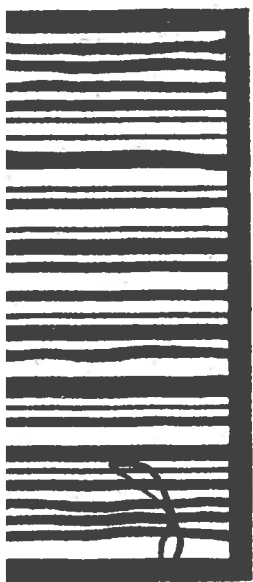
1 + 6 = 7

# 1000

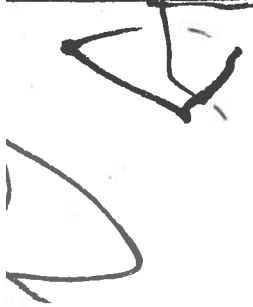


# 29519.00

Ayden



BM3M



Smart bird says that a \$1000 credit card  
at 24% for 30 years with a min payment  
of \$20.01 will cost \$7203.06



Bird

5-8-17  
NRIW



# How a credit card works.

\$1000 at 24% for 10 years gives a min payment of \$22.05 per month.

$$A = P(1 + \frac{r}{n}) - M$$

$$P = 1000$$

$$r = 24\% = 0.24$$

$$n = 12 = \text{monthly}$$

$$M = \$22.05 = \text{min payment}$$

$$A = 1000(1 + \frac{0.24}{12}) - (22.05)$$

$$A = 1000(1 + 0.02) - (22.05)$$

$$A = 1000(1.02) - (22.05)$$

$$A = 1020 - 22.05$$

**A = \$997.95** Balance after 1st payment

$$A = P(1 + \frac{r}{n}) - M$$

$$P = 997.95$$

$$r = 24\% = 0.24$$

$$n = 12 = \text{monthly}$$

$$M = \$22.05 = \text{min payment}$$

$$A = 997.95(1 + \frac{0.24}{12}) - (22.05)$$

$$A = 997.95(1 + 0.02) - (22.05)$$

$$A = 997.95(1.02) - (22.05)$$

$$A = 1017.909 - 22.05$$

$$A = 995.859$$

**A = \$995.86** Balance after 2nd payment



*\$1000 at 24% for (10 years)*

$$P = \frac{P_0 \cdot (1 + r/n)^{nt}}{(1 + r/n)^{nt} - 1}$$
 MORTIZATION FORMULA PAYMENT = \$ 22.0481  
 MONTHLY AMORTIZATION SCHEDULE FOR A \$1000.0000 LOAN  
 AT 24.00% COMPOUNDED 12 TIMES PER YEAR FOR 10.00 YEARS.

PAYMENT	INTEREST	PRINCIPLE	TOTAL	BALANCE	PAYMENTS
22.05	20.00	2.05	997.95	NUMBER	1
22.05	19.96	2.09	995.86	NUMBER	2
22.05	19.92	2.13	993.73	NUMBER	3
22.05	19.87	2.17	991.56	NUMBER	4
22.05	19.83	2.22	989.34	NUMBER	5
22.05	19.79	2.26	987.08	NUMBER	6
22.05	19.74	2.31	984.77	NUMBER	7
22.05	19.70	2.35	982.42	NUMBER	8
22.05	19.65	2.40	980.02	NUMBER	9
22.05	19.60	2.45	977.57	NUMBER	10
22.05	19.55	2.50	975.08	NUMBER	11
22.05	19.50	2.55	972.53	NUMBER	12

SUM OF INTEREST PAID 237.1079  
 SUM OF PRINCIPLE PAID 27.4693  
 UNPAID PRINCIPLE 972.5307  
 TOTAL PAID PRINCIPLE AND INTEREST 264.5772  
 PRESS 1 RETURN FOR MORE OUTPUT

*YEAR 1*

Amount of credit card paid.

UNPAID PRINCIPLE 972.5307  
 TOTAL PAID PRINCIPLE AND INTEREST 264.5772  
 PRESS 1 RETURN FOR MORE OUTPUT

MONTHLY AMORTIZATION SCHEDULE FOR A \$1000.0000 LOAN  
 AT 24.00% COMPOUNDED 12 TIMES PER YEAR FOR 10.00 YEARS.

PAYMENT	INTEREST	PRINCIPLE	TOTAL	BALANCE	PAYMENTS
22.05	19.45	2.60	969.93	NUMBER	13
22.05	19.40	2.65	967.28	NUMBER	14
22.05	19.35	2.70	964.58	NUMBER	15
22.05	19.29	2.76	961.82	NUMBER	16
22.05	19.24	2.81	959.01	NUMBER	17
22.05	19.18	2.87	956.15	NUMBER	18
22.05	19.12	2.93	953.22	NUMBER	19
22.05	19.06	2.98	950.24	NUMBER	20
22.05	19.00	3.04	947.19	NUMBER	21
22.05	18.94	3.10	944.09	NUMBER	22
22.05	18.88	3.17	940.92	NUMBER	23
22.05	18.82	3.23	937.69	NUMBER	24

SUM OF INTEREST PAID 466.8474  
 SUM OF PRINCIPLE PAID 62.3069  
 UNPAID PRINCIPLE 937.6931  
 TOTAL PAID PRINCIPLE AND INTEREST 529.1543  
 PRESS 1 RETURN FOR MORE OUTPUT

*YEAR 2*

Amount of credit card paid.

UNPAID PRINCIPLE 937.6931  
 TOTAL PAID PRINCIPLE AND INTEREST 529.1543  
 PRESS 1 RETURN FOR MORE OUTPUT

MONTHLY AMORTIZATION SCHEDULE FOR A \$1000.0000 LOAN  
 AT 24.00% COMPOUNDED 12 TIMES PER YEAR FOR 10.00 YEARS.

PAYMENT	INTEREST	PRINCIPLE	TOTAL	BALANCE	PAYMENTS
22.05	18.75	3.29	934.40	NUMBER	25
22.05	18.69	3.36	931.04	NUMBER	26
22.05	18.62	3.43	927.61	NUMBER	27
22.05	18.55	3.50	924.12	NUMBER	28
22.05	18.48	3.57	920.55	NUMBER	29
22.05	18.41	3.64	916.91	NUMBER	30
22.05	18.34	3.71	913.20	NUMBER	31
22.05	18.26	3.78	909.42	NUMBER	32
22.05	18.19	3.86	905.56	NUMBER	33
22.05	18.11	3.94	901.62	NUMBER	34
22.05	18.03	4.02	897.61	NUMBER	35
22.05	17.95	4.10	893.51	NUMBER	36

SUM OF INTEREST PAID 687.2420  
 SUM OF PRINCIPLE PAID 106.4895  
 UNPAID PRINCIPLE 893.5105  
 TOTAL PAID PRINCIPLE AND INTEREST 793.7315  
 PRESS 1 RETURN FOR MORE OUTPUT

*YEAR 3*

Amount of credit card paid.

UNPAID PRINCIPLE 893.5105  
 TOTAL PAID PRINCIPLE AND INTEREST 793.7315  
 PRESS 1 RETURN FOR MORE OUTPUT

MONTHLY AMORTIZATION SCHEDULE FOR A \$1000.0000 LOAN  
 AT 24.00% COMPOUNDED 12 TIMES PER YEAR FOR 10.00 YEARS.

PAYMENT	INTEREST	PRINCIPLE	TOTAL	BALANCE	PAYMENTS
22.05	17.87	4.18	889.33	NUMBER	37
22.05	17.79	4.26	885.07	NUMBER	38
22.05	17.70	4.35	880.72	NUMBER	39
22.05	17.61	4.43	876.29	NUMBER	40
22.05	17.53	4.52	871.77	NUMBER	41
22.05	17.44	4.61	867.16	NUMBER	42
22.05	17.34	4.70	862.45	NUMBER	43
22.05	17.25	4.80	857.65	NUMBER	44
22.05	17.15	4.90	852.76	NUMBER	45
22.05	17.06	4.99	847.76	NUMBER	46
22.05	16.96	5.09	842.67	NUMBER	47
22.05	16.85	5.19	837.48	NUMBER	48

SUM OF INTEREST PAID 895.7850  
 SUM OF PRINCIPLE PAID 162.5237  
 UNPAID PRINCIPLE 837.4763  
 TOTAL PAID PRINCIPLE AND INTEREST 1058.3087  
 PRESS 1 RETURN FOR MORE OUTPUT

*YEAR 4*

Amount of credit card paid.



UNPAID PRINCIPLE 837.4763  
 TOTAL PAID PRINCIPLE AND INTEREST 1058.3087  
 PRESS 1 RETURN FOR MORE OUTPUT

1  
 MONTHLY AMORTIZATION SCHEDULE FOR A \$1000.0000 LOAN  
 AT 24.00% COMPOUNDED 12 TIMES PER YEAR FOR 10.00 YEARS.

PAYMENT	INTEREST	PRINCIPLE	BALANCE	PAYMENTS
22.05	16.75	5.30	832.18	NUMBER 49
22.05	16.64	5.40	826.77	NUMBER 50
22.05	16.54	5.51	821.26	NUMBER 51
22.05	16.43	5.62	815.64	NUMBER 52
22.05	16.31	5.74	809.90	NUMBER 53
22.05	16.20	5.85	804.05	NUMBER 54
22.05	16.08	5.97	798.09	NUMBER 55
22.05	15.96	6.09	792.00	NUMBER 56
22.05	15.84	6.21	785.79	NUMBER 57
22.05	15.72	6.33	779.46	NUMBER 58
22.05	15.59	6.46	773.00	NUMBER 59
22.05	15.46	6.59	766.41	NUMBER 60

YEAR  
 5

SUM OF INTEREST PAID 1089.2972  
 SUM OF PRINCIPLE PAID 233.5886  
 UNPAID PRINCIPLE 766.4114  
 TOTAL PAID PRINCIPLE AND INTEREST 1322.8858  
 PRESS 1 RETURN FOR MORE OUTPUT

UNPAID PRINCIPLE 766.4114  
 TOTAL PAID PRINCIPLE AND INTEREST 1322.8858  
 PRESS 1 RETURN FOR MORE OUTPUT

1  
 MONTHLY AMORTIZATION SCHEDULE FOR A \$1000.0000 LOAN  
 AT 24.00% COMPOUNDED 12 TIMES PER YEAR FOR 10.00 YEARS.

PAYMENT	INTEREST	PRINCIPLE	BALANCE	PAYMENTS
22.05	15.33	6.72	759.69	NUMBER 61
22.05	15.19	6.85	752.84	NUMBER 62
22.05	15.06	6.99	745.85	NUMBER 63
22.05	14.92	7.13	738.71	NUMBER 64
22.05	14.77	7.27	731.44	NUMBER 65
22.05	14.63	7.42	724.02	NUMBER 66
22.05	14.48	7.57	716.45	NUMBER 67
22.05	14.33	7.72	708.73	NUMBER 68
22.05	14.17	7.87	700.86	NUMBER 69
22.05	14.02	8.03	692.83	NUMBER 70
22.05	13.86	8.19	684.64	NUMBER 71
22.05	13.69	8.36	676.28	NUMBER 72

YEAR  
 6

SUM OF INTEREST PAID 1263.7469  
 SUM OF PRINCIPLE PAID 323.7161  
 UNPAID PRINCIPLE 676.2839  
 TOTAL PAID PRINCIPLE AND INTEREST 1587.4630  
 PRESS 1 RETURN FOR MORE OUTPUT

UNPAID PRINCIPLE 676.2839  
 TOTAL PAID PRINCIPLE AND INTEREST 1587.4630  
 PRESS 1 RETURN FOR MORE OUTPUT

1  
 MONTHLY AMORTIZATION SCHEDULE FOR A \$1000.0000 LOAN  
 AT 24.00% COMPOUNDED 12 TIMES PER YEAR FOR 10.00 YE.

PAYMENT	INTEREST	PRINCIPLE	BALANCE	PAYMENTS
22.05	13.53	8.52	667.76	NUMBER 73
22.05	13.36	8.69	659.07	NUMBER 74
22.05	13.18	8.87	650.20	NUMBER 75
22.05	13.00	9.04	641.16	NUMBER 76
22.05	12.82	9.22	631.93	NUMBER 77
22.05	12.64	9.41	622.52	NUMBER 78
22.05	12.45	9.60	612.93	NUMBER 79
22.05	12.26	9.79	603.14	NUMBER 80
22.05	12.06	9.99	593.15	NUMBER 81
22.05	11.86	10.19	582.97	NUMBER 82
22.05	11.66	10.39	572.58	NUMBER 83
22.05	11.45	10.60	561.98	NUMBER 84

YEAR  
 7

SUM OF INTEREST PAID 1414.0206  
 SUM OF PRINCIPLE PAID 438.0195  
 UNPAID PRINCIPLE 561.9805  
 TOTAL PAID PRINCIPLE AND INTEREST 1852.0401  
 PRESS 1 RETURN FOR MORE OUTPUT

UNPAID PRINCIPLE 561.9805  
 TOTAL PAID PRINCIPLE AND INTEREST 1852.0401  
 PRESS 1 RETURN FOR MORE OUTPUT

1  
 MONTHLY AMORTIZATION SCHEDULE FOR A \$1000.0000 LOAN  
 AT 24.00% COMPOUNDED 12 TIMES PER YEAR FOR 10.00 YE.

PAYMENT	INTEREST	PRINCIPLE	BALANCE	PAYMENTS
22.05	11.24	10.81	551.17	NUMBER 85
22.05	11.02	11.02	540.15	NUMBER 86
22.05	10.80	11.25	528.90	NUMBER 87
22.05	10.58	11.47	517.43	NUMBER 88
22.05	10.35	11.70	505.73	NUMBER 89
22.05	10.11	11.93	493.80	NUMBER 90
22.05	9.88	12.17	481.63	NUMBER 91
22.05	9.63	12.42	469.21	NUMBER 92
22.05	9.38	12.66	456.55	NUMBER 93
22.05	9.13	12.92	443.63	NUMBER 94
22.05	8.87	13.18	430.46	NUMBER 95
22.05	8.61	13.44	417.02	NUMBER 96

YEAR  
 8

SUM OF INTEREST PAID 1533.6334  
 SUM OF PRINCIPLE PAID 582.9839  
 UNPAID PRINCIPLE 417.0161  
 TOTAL PAID PRINCIPLE AND INTEREST 2116.6173  
 PRESS 1 RETURN FOR MORE OUTPUT



UNPAID PRINCIPLE 417.0161  
 TOTAL PAID PRINCIPLE AND INTEREST 2116.6173  
 PRESS 1 RETURN FOR MORE OUTPUT

1

MONTHLY AMORTIZATION SCHEDULE FOR A \$1000.0000 LOAN  
 AT 24.00% COMPOUNDED 12 TIMES PER YEAR FOR 10.00 YEARS

PAYMENT	INTEREST	PRINCIPLE	BALANCE	PAYMENTS
22.05	8.34	13.71	403.31	NUMBER 97
22.05	8.07	13.98	389.33	NUMBER 98
22.05	7.79	14.26	375.06	NUMBER 99
22.05	7.50	14.55	360.52	NUMBER 100
22.05	7.21	14.84	345.68	NUMBER 101
22.05	6.91	15.13	330.55	NUMBER 102
22.05	6.61	15.44	315.11	NUMBER 103
22.05	6.30	15.75	299.36	NUMBER 104
22.05	5.99	16.06	283.30	NUMBER 105
22.05	5.67	16.38	266.92	NUMBER 106
22.05	5.34	16.71	250.21	NUMBER 107
22.05	5.00	17.04	233.17	NUMBER 108

YE ~~108~~  
 9

SUM OF INTEREST PAID 1614.3606  
 SUM OF PRINCIPLE PAID 766.8339  
 UNPAID PRINCIPLE 233.1661  
 TOTAL PAID PRINCIPLE AND INTEREST 2381.1945  
 PRESS 1 RETURN FOR MORE OUTPUT

UNPAID PRINCIPLE 233.1661  
 TOTAL PAID PRINCIPLE AND INTEREST 2381.1945  
 PRESS 1 RETURN FOR MORE OUTPUT

1

MONTHLY AMORTIZATION SCHEDULE FOR A \$1000.0000 LOAN  
 AT 24.00% COMPOUNDED 12 TIMES PER YEAR FOR 10.00 YEARS

PAYMENT	INTEREST	PRINCIPLE	BALANCE	PAYMENTS
22.05	4.66	17.38	215.78	NUMBER 109
22.05	4.32	17.73	198.05	NUMBER 110
22.05	3.96	18.09	179.96	NUMBER 111
22.05	3.60	18.45	161.51	NUMBER 112
22.05	3.23	18.82	142.70	NUMBER 113
22.05	2.85	19.19	123.50	NUMBER 114
22.05	2.47	19.58	103.92	NUMBER 115
22.05	2.08	19.97	83.95	NUMBER 116
22.05	1.68	20.37	63.58	NUMBER 117
22.05	1.27	20.78	42.81	NUMBER 118
22.05	0.86	21.19	21.63	NUMBER 119
22.05	0.43	21.62	0.00	NUMBER 120

YE ~~119~~  
 10

SUM OF INTEREST PAID 1645.7716  
 SUM OF PRINCIPLE PAID 1000.0000  
 UNPAID PRINCIPLE 0.0000  
 TOTAL PAID PRINCIPLE AND INTEREST 2645.7716  
 PRESS 1 RETURN FOR MORE OUTPUT



The number of years to pay a spring break \$1000 on 24% credit card. 030913

Find the equal monthly payments that will amortize the credit card loan of \$1000 for 10 years at 24%.

Use a graphing calculator

$A = 1000(.24/12)/(1-(1+.24/12)^{-12(10)}) = 22.04809689$

TOTAL  
\$ 7203.60

Years min monthly payment

30 20.01604414

20.01

\$ 20.01(12)(30) =

29 20.02035223

28 20.02581859

27 20.03275556

26 20.04156023

\$ 20.05(12)(25) = 6015.00

25 20.05273782

20.05

24 20.06693165

23 20.08496178

22 20.10787501

21 20.13700982

\$ 20.17(12)(20) = 4840.80

20 20.17408147

20.17

19 20.22129407

18 20.28148986

17 20.35835011

16 20.45666944

\$ 20.58(12)(15) = 3704.40

15 20.58273647

20.58

14 20.74487245

13 20.95421123

12 21.22505906

11 21.58067409

10 22.04809689

09 22.67084829

08 23.51312748

07 24.67581178

06 26.32683071

05 28.76796583

04 32.60183555

03 39.2328526

02 52.87109725

01 94.55959662

22.05

28.77

94.56

5 TOTAL

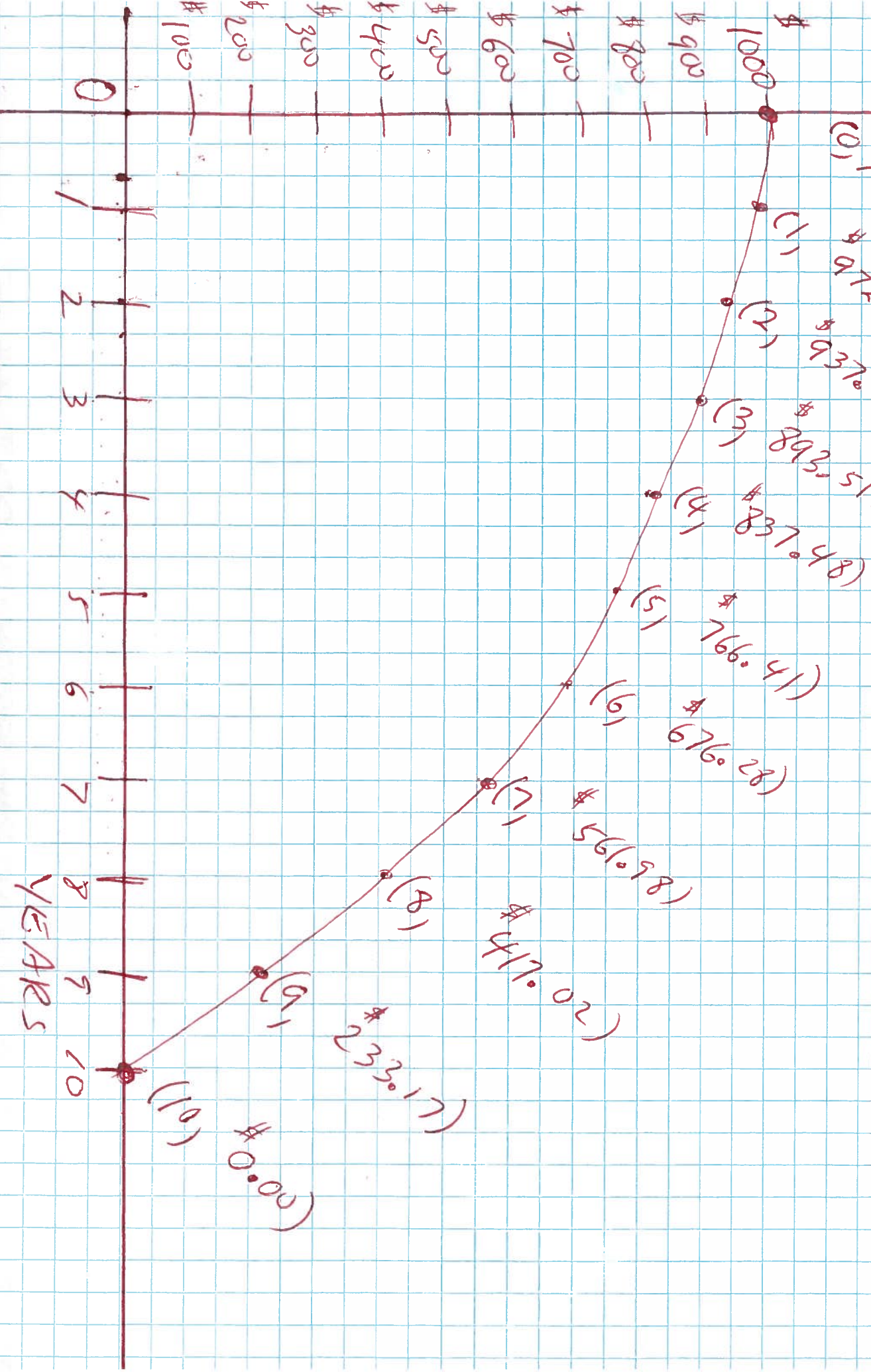
# 22.05(12)(10) = \$ 2646.00

# 28.77(12)(5) = \$ 1726.20

# 94.56(12)(1) = \$ 1134.72

9

\$1000 Credit Card at 24% for 10 YEARS with a min payment of \$22.05



We grow exponentially or really fast.

