MATH 11 Review \#2

$$
\begin{array}{cc}
\text { IA. } 0,9,30,69,132,225 & D_{[3]}=6 \text { (Cubic) } \\
D_{1} 921396393 & y=x^{3}+2 x-3 \\
V V \vee V & \\
D_{2} 12182430 & \\
D_{3} 666 &
\end{array}
$$

B. $-3,1,5,9,13,17$
$D_{\square}=4$ (Linear)
D. 444444

$$
y=4 x-7
$$

$$
\begin{aligned}
& \text { C. } 20,-7,-56,-103,-100,25 D_{\boxed{V}}=24 \text { (Quartic) } \\
& D_{1}-27-49-47 V^{3} V^{125} \quad y=\frac{x^{4}-6 x^{3}+25}{} \\
& D_{2}-22 V^{20} V^{122} \\
& D_{3} 244872 \\
& D_{4} 2424 .
\end{aligned}
$$

D. $4,0,-2,-2,0,4$

$$
\begin{array}{cc}
4,0,-2,-2,0,4 & D_{\text {目 }}=2 \text { (Quadratic) } \\
V V^{2} & y=\underline{x^{2}-7 x+10} \\
D_{1}-4-2, V_{V} & V \\
D_{2} 2222 &
\end{array}
$$

| 2. Years | Salary/week |
| :---: | :---: |
| 0 | 500 |
| 1 | 780 |
| 3 | 1220 |
| 5 | 1500 |
| 7 | 1620 |
| $h_{1}$ | $h_{2}$ |

To find the salary for year $H$, use the graphing calculator.

From Calculator: $y=-20 x^{2}+300 x+500$
When $x=4$

$$
\begin{aligned}
&=4 \quad y=-20(4)^{2}+300(4)+500 \\
& y=-20(16)+1200+500 \\
& y=-320+1200+500 \\
& y=1380 \\
& 1 \$ 1380
\end{aligned}
$$



$$
P=30 \mathrm{~m}
$$

Let $x=$ width
$50-2 x=$ length
$A=\ell \times w$

$$
\begin{aligned}
& A==\times W \\
& A=(30-2 x)(x) \Rightarrow A
\end{aligned}
$$

4

|  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $W$ |  |  |  |  |  |  |

$$
\text { Total Area }=90 \mathrm{~m}^{2}
$$

$$
\begin{aligned}
& A=\ln w \\
& 10 m^{2}=(w+8)(w) \\
& 10 m^{2}=w^{2}+8 w \\
& 0=w^{2}+8 w-10 \Rightarrow B .
\end{aligned}
$$

Area of 1 section

$$
\begin{aligned}
& =\frac{90 m^{2}}{9} \\
& =10 m^{2}
\end{aligned}
$$



$$
\begin{gathered}
P=200 \mathrm{~m} \\
\text { Let } x=\text { width } \\
\frac{200-2 x}{2}=\text { length } \\
100-x=\text { length } \\
A=\text { lew } \\
A=(100-x) x \Rightarrow A
\end{gathered}
$$

$$
\begin{aligned}
& \text { (o. a) } \frac{1}{2}, \frac{1}{\times \frac{1}{2}}, \underbrace{8}_{\times \frac{1}{2}}, \cdots \\
& \begin{array}{l}
t_{1}=\frac{1}{2} \\
r=\frac{1}{2}
\end{array} \quad \Rightarrow \quad \begin{array}{l}
t_{n}=t_{1} r^{n-1} \\
t_{n}=\left(\frac{1}{2}\right)\left(\frac{1}{2}\right)^{n-1}
\end{array} \\
& \begin{aligned}
\Rightarrow t_{8} & =\left(\frac{1}{2}\right)\left(\frac{1}{2}\right)^{8-1} \\
& =\left(\frac{1}{2}\right)\left(\frac{1}{2}\right)^{7}
\end{aligned} \\
& \begin{array}{l}
=\left(\frac{1}{2}\right)\left(\frac{1}{128}\right) \\
=\frac{1}{256}
\end{array}
\end{aligned}
$$

b)

$$
\begin{aligned}
& \begin{array}{l}
\underbrace{4-32,16, \ldots-\frac{1}{2}}_{x-\frac{1}{2}} \\
\begin{aligned}
& t_{1}=64 \\
& r=-\frac{1}{2} \Rightarrow t_{n}
\end{aligned} \\
=t_{1}, r^{n-1} \\
\Rightarrow t_{7}
\end{array}=(64)\left(-\frac{1}{2}\right)^{n-1} \\
& \\
& \\
& =(64)\left(-\frac{1}{2}\right)^{7-1} \\
& \\
&
\end{aligned}
$$

c)

$$
\begin{aligned}
& 2 x, 4 x^{2}, 8 x^{3}, \ldots \\
& t_{1}=2 x \\
& t_{n}=t_{1} r^{n-1} \\
& r=2 x \\
& \Rightarrow t_{n}=2 \times(2 x)^{n-1} \\
& \Rightarrow t_{10}=2 x(2 x)^{10-1} \\
& t_{10}=2 x(2 x)^{9} \\
& t_{10}=2 x\left(512 x^{9}\right) \\
& t_{10}=1024 x^{10}
\end{aligned}
$$

7. 

a)

$$
\begin{aligned}
& \underbrace{4,12,36, \ldots, 972}_{\times 3} \\
& t_{1}=4 \\
& t_{n}=t_{1} r^{n-1} \\
& r=3 \\
& t_{n}=972 \\
& 972=(4)(3)^{n-1} \\
& \frac{972}{4}=\frac{(44)(3)^{n-1}}{4} \\
& 243=3^{n-1} \\
& (3)^{5}=3^{n-1} \\
& 5=n-1 \\
& 5+1=n \\
& 6=n
\end{aligned}
$$

b)

$$
\begin{aligned}
& \underset{\times 2}{3,6} \underset{\times 2}{12}, \ldots, 768 \\
& t_{1}=3 \\
& r=2 \\
& t_{n}=768 \\
& \begin{aligned}
t_{n} & =t_{1} r^{n-1} \\
768 & =(3)(2)^{n-1} \\
\frac{768}{3} & =\frac{(3)(2)^{n-1}}{B^{2}} \\
256 & =2^{n-1} \\
(2)^{8} & =2^{n-1} \\
8 & =n-1 \\
8+1 & =n \\
9 & =n^{n}
\end{aligned}
\end{aligned}
$$

c)

$$
\begin{array}{rlrl}
\frac{1}{25}, \frac{1}{5}, \underbrace{1}_{\times 5}, \cdots, 625 \\
t_{1}=\frac{1}{25} & & \\
r=5 & 625 \div \frac{1}{25} & =5^{n-1} \\
t_{n}=625 & & =t_{1} r^{n-1} \\
t_{n} & \left.625 \times \frac{1}{25}\right)^{(5)} & =5^{n-1} \\
& 15625 & =5^{n-1} \\
& (5) 6 & =5^{n-1} \\
6 & =n-1 \\
6+1 & =n \\
7 & =n
\end{array}
$$

