UNIT 8 – Sequences and Series – Due Wednesday, May 15th

Determine whether each of the following sequences is arithmetic, geometric, or neither.

1.) –1, 1, 3, 5, 7,	2.) 4, 8, 16, 32, 64,	3.) 1, 1, 2, 3, 5, 8,
4.) $\frac{2}{3}, \frac{1}{2}, \frac{1}{3}, \frac{1}{6}, 0, \cdots$	5.) $a_1 = 3$, $a_n = 2(a_{n-1}) - 5$	6.) $a_n = \frac{2-n}{2}$
Write the first 5 terms of ea	 ch sequence defined below:	
7.) $a_1 = 1, a_n = 4 (a_{n-1})$	8.) $a_n = n(n-1)$	9.) $a_n = (n+1)^2$
Write the next term of the s formula) for the nth term.	equence, and then write the rule	(explicit
10.) 5, 10, 15, 20,	11.) 3, 7, 11, 15,	12.) 9, 12, 15, 18,
13.) 5, 4, 3, 2,	14.) 3, 9, 27, 81,	15.) $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \cdots$
Solve:		
19.) Find the number of line s next two iterations.	segments in the	
20.) Jim charges \$50 per we and weeding services. H his prices by 4% each ye	ek for lawn mowing le plans to increase	80 70 60
a.) Graph the sequence	. (\$)	50
b.) Describe the pattern	. Lice	40
c.) To the nearest dollar charge per week in 5	, how much will he years?	$\begin{array}{c} 20 \\ 10 \\ 0 \\ 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \end{array}$
		Year

29.) Find the 20th term of the arithmetic sequence in which $a_3 = 6$ and $a_{10} = 62$.

30.) Find the 8th term of the geometric sequence in which $a_8 = 156,250$ and $a_{12} = 97,656,250$

Find the sum of the first *n* terms of the series WITHOUT writing all terms.

31.) 5 + 8 + 11 + 14 + ...; n = 100 32.) $3 + 1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27} + ...; n = \infty$

Evaluate each sum

$$\sum_{33.}^{8} 2i + 3 \qquad \qquad \sum_{i=3}^{8} 2i + 3 \qquad \qquad 34.) \sum_{i=3}^{8} 2i + 3 \qquad \qquad 35.) \sum_{i=1}^{50} \frac{i+2}{50}$$

Simplify

36.) $\frac{(n+2)!(n-3)!}{n!(n-5)!}$

UNIT 9 – Probability – Due Wednesday, May 15th

Choose the best answer.

1.) The graph below shows the number of boys and the number of girls on a school's debate team.



If a student is chosen at random from the team, what is the probability that the student is a boy?

A 0.4 B 0.6

2. A printer has 8 colors of ink, but can only pick 3 to use on a pamphlet that he is printing. How many different color combinations can he choose?

A 24	B 120
C 56	D 336

3.) Which is the probability that a 1-6 number cube lands on a number less than 2?

A 0.67	C 0.33
B 0.50	D 0.17

4.) Of the 200 seniors graduating, 45 took an art class while in high school and 89 were in the band. Only 20 of the students who took an art class were not also in band. What is the probability that a graduate chosen at random was in the band or had taken an art class?

A 0.55 B 0.67

5.) A store is keeping track of the customers who enter a certain department and whether or not they make a purchase. The results are shown below.

Customers by Gender		
Men Women		Women
Bought	7	4
Didn't Buy	5	9

What is the probability that a customer from this group made a purchase?

A 0.44 B 0.56

6.) Use the two-way table from Question 5. What is the probability that a man did not make a purchase?

A 0.36	B 0.2
C 0.28	D 0.16

7.) Which is the probability that a card drawn from a standard deck is red and an 8?

A 0.25	B 0.08
C 0.16	D 0.04

8.) A gardener has counted the number of roses he has of each color. The results are graphed below.



If a rose is picked at random, what is the probability that the rose is pink?

A 0.292	B 0.375
C 0.333	D 0.471

- 9.) The graph below shows the number of students who have traveled to Canada and the number who haven't. 12 below. Number of Students 10 8 6 4 2 0 Have Been Have Never Been to Canada to Canada What is the probability that a student chosen at random has been to Canada? 10.) A movie theater has posters for 7 new movies. How many ways can the theater arrange 5 of the posters on a wall? 11.) A child has 4 wooden blocks. How many different ways can she stack 3 of them into a tower? 12.) What is the probability a 1-6 number cube lands on a composite number? number? 13.) Dan has 200 baseball cards. 61 of them are of retired players and 50 of them are of pitchers. Dan has 35 cards of retired pitchers. What is the probability that the player on one of his cards is retired or a pitcher.
- 14.) A television station wants to know how its newest show is performing. The results of their poll of high school students is shown

Viewership by Grade		
	9–10 11–12	
Watch	8	9
Don't Watch	7	16

What is the probability that a student in 9th or 10th grade watches the show?

- 15.) Use the two-way table from Question 12. What is the probability that a student is in 11th or 12th grade?
- 16.) What is the approximate probability that a card drawn from a standard deck is red and has a letter on it?
- 17.) Which is the probability two 1-6 number cubes land on an even

A 0.75	B 0.25
C 0.50	D 0.10

18.) A menu at a restaurant offers 9 different appetizers. How many different ways can a group order 4 appetizers?

A 81	B 3024
C 126	D 5040