

Math 1332 Review 3

1. Find the standard deviation of the data set $\{3, 3, 5, 8, 10, 13\}$ by completing the following table:

x	$\bar{x}$	$x - \bar{x}$	$(x - \bar{x})^2$
3	7	-4	
3	7		
5	7		
8	7		
10	7		
13	7		
$\sum (x - \bar{x})^2 =$			
$\frac{\sum (x - \bar{x})^2}{n - 1} =$			
$\sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}} =$			

2. For a particular data set the mean is 10 and the standard deviation is 2. According to Chebyshev's Theorem, at least what percentage of the data values are between
a) 6 and 14? **b)** 4 and 16? **c)** 3 and 17?
3. Find the simple interest for a loan of \$4,902 at 6.5% for 11 months.
4. Find the present value using simple interest of \$80,612 in 128 days at 6.77%. Use a 360 day year.
5. Find the future value at the end of the 3 years for the following investment: \$4,677.23 at 4.57% compounded monthly for 3 years. How much is interest?
6. Find the present value of \$1,347 in 3.5 years at 6.2% compounded semi-annually.
7. Find the future value of an annuity with deposits of \$250 at the end of each month into an account paying 3% compounded monthly after 5 years. How much is interest?
8. Find the present value of an annuity that pays \$500 at the end of each month from an account earning 4% compounded monthly for the next 70 months.
9. Find the periodic payment needed to amortize a loan of \$32,000 at 8.4% compounded quarterly for 10 quarters.
10. Use the effective rate to rank the following compound interest schemes in ascending order:
Scheme #1: 6% compounded monthly
Scheme #2: 5.9% compounded weekly
Scheme #3: 5.8% compounded daily (Use a 360 day year.)
11. Your class is given the option of choosing a day for the final exam. The results of the election are shown in the preference table:

Votes	9	5	4	2	2	1
First	Tu	Tu	M	Tu	W	W
Second	W	W	Tu	M	F	M
Third	F	M	F	W	Tu	F
Fourth	M	F	W	F	M	Tu

- a) How many students voted in the election?
- b) How many students selected the days in the order: M, Tu, F, W?
- c) How many students selected Tuesday as their first choice for the final exam?
- d) How many students selected Wednesday as their second choice for the final exam?
- e) Determine the winning day using the Plurality method.
- f) Determine the winning day using the Borda Count method.
- g) Determine the winning day using the Plurality with Elimination method.
- h) Determine the winning day using the Pairwise Comparison method.

12. Voters are considering four proposals. The results of the election are shown in the following preference table:

Votes	1500	600	300
First	A	B	C
Second	B	D	B
Third	C	C	D
Fourth	D	A	A

- a) Which proposal wins using the Borda Count method?
- b) Which proposal has a majority of first-place votes?
- c) In this case, does the Borda Count method satisfy the Majority Criterion?
- d) Which proposal wins in a head to head comparison?
- e) In this case, does the Borda Count method satisfy the Head to Head Criterion?