

FINAL REVIEW

To prepare for the test, you should study **all quizzes and tests**, as well as the **homework problems** listed below OR the similar examples done in class from the topics listed here.

Important topics:

Graphing Functions & Systems of Inequalities

2.4	Exercises 9, 10, 15
2.6	Exercises 20, 27, 31
2.7	Exercises 4, 7, 46, 51, 53
3.1	Exercises 1, 2, 3, 15, 17, 18, 21, 23, 24
3.4	Exercises 29, 31, 32, 34, 35, 37, 39, 40, 41, 43, 46
3.5	Exercises 61, 65, 67, 69, 70, 73, 74, 75, 79, 80, 87, 89, 95
4.2	Exercises 13, 14, 15, 19, 20, 25, 26, 27
4.3	Exercises 33, 34, 45, 46, 49
5.6	Exercises 30, 35, 37, 38, 47, 52, 53, 54, 56, 58
Review Test 1	Exercise 1, 7
Review Test 2	Exercises 1, 2, 4, 5, 7
Handout 2.4 & 2.5	Exercise 1
Handout 2.6	All examples
Handout 2.7	All examples; Exercises 1, 2, 6,
Handout 3.1	All exercises
Handout 3.5	Exercises 1 – 9
Handout 4.2	Exercise 2
Handout 4.3 – 4.6	Exercise 4

Solving equations, inequalities, and systems of equations

3.3	Exercises 17, 19, 20, 22, 27, 28, 31, 32, 33, 35, 37, 38, 39, 41, 49, 51, 52, 53, 55, 57, 62, 65, 79, 85,
4.2	Exercises 49 – 69
4.3	Exercises 27 – 44
4.4	Exercises 9 – 68 every third
5.2	Exercises 25, 27, 30, 35, 36, 37, 39, 40, 41, 42
Handout Review Chapter 1	Exercises 1, 2, 3, 4
Handout 3.2 & 3.3	Exercises 2, 8, 9, 10, 11, 12, 14, 15, 16
Handout 4.2	Exercise 3
Handout 4.3 – 4.6	Exercises 6, 7
Handout 5.2 & 5.7	Section 5.2 Exercises 6 – 10

More about functions

2.5	Exercises 6, 7, 14, 15, 47, 49, 50
2.8	Exercises 1 – 8, 11, 13, 23 – 26, 33, 34, 37, 39, 40, 41 – 48, 57, 59, 60, 66, 69, 71
4.1	Exercises 41, 55, 62, 69
4.3	Exercises 59 – 80
Handout 2.4 & 2.5	Exercise 2
Handout 4.3 – 4.6	Exercises 1, 2, 3, 5
Review Test 1	Exercises 3, 6, 9
Review test 2	Exercises 6

Other topics

5.7	Exercises 24, 33, 36, 37 – 44, 53, 55, 56, 61, 63, 64, 65 – 72, 77, 78
7.1	Exercises 5, 10, 23, 25, 27, 28
7.2	Exercises 7, 8, 13, 16, 23, 43, 45, 47, 49, 50, 59, 60, 69
7.3	Exercises 5, 10, 15, 20, 34, 35, 36, 39, 41 – 47
7.4	Exercises 1 – 20, 23, 5, 27, 30, 35, 36, 38, 39,
Handout 5.2 & 5.7	Section 5.7 Exercises 1, 2, 7, 8

More Practice – Chapter 7

1) Find and simplify:

a) $\sum_{i=1}^6 (-3)^i$ b) $\sum_{n=1}^4 \frac{(n+2)!}{(n-1)!}$ c) $\sum_{k=1}^3 \frac{(k+1)!}{k!}$ d) $\sum_{n=1}^5 nx^{n-1}$ e) $\sum_{k=0}^6 \binom{6}{k}$

2) Use the Binomial Theorem to expand . Show all work. Do not just write an answer.

a) $(2x+3y)^5$ b) $\left(\frac{1}{2}a - \frac{1}{3}b\right)^4$

3) Answer all questions for each sequence:

a) $1, \frac{1}{3}, \frac{1}{9}, \dots$ b) $-3, -7, -11, \dots$

i) What type of sequence is it?

ii) Specify the first term and the common difference or ratio.

iii) Find a formula for the general term a_n and simplify.

iv) Find a formula for the sum of the first n terms and simplify.

v) What is the sum of the first 100 terms?

vi) Find the sum of all the terms (infinite sum) when appropriate. Explain why you can or cannot find the sum (in other words, why the sequence is convergent or not).

4) Let $\log 2, \log 4, \log 8, \dots$ be a sequence. Answer the following:

a) What type of sequence is it?

b) Specify the first term and the common difference or ratio.

c) Find a formula for the general term a_n and simplify.

d) What is the sum of the first 100 terms?

5) Let $(x + y^2)^{30}$. Find the following:

a) Find the 17th term . Show all work.

b) Find the coefficient of the term that contains x^{11} . Show all work.

6) Evaluate

a) $\sum_{k=1}^{25} (3 - k^2)$ b) $\sum_{n=1}^{\infty} \frac{1}{2^n}$ c) $\sum_{n=1}^{100} (1 + n^2)$

7) Find:

a) $\frac{1}{9} + \frac{1}{27} + \frac{1}{81} + \dots$ b) $\sum_{n=0}^{\infty} \frac{(-1)^n 5}{4^n}$ c) $\sum_{i=0}^{\infty} \frac{5}{3^n}$ d) $2 + \frac{2}{3} + \frac{2}{9} + \frac{2}{27} + \dots + \frac{2}{3^{n-1}}$

8) Find a fraction representation for the rational number $2.\overline{13}$. Show all work.
