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## **Trigonometry/Pre-Calculus**

**Please review the FAQs and [contact](#) us if you find a problem.**

**Credits:** 1

**Prerequisite:** Geometry, Algebra 2

**Recommended:** 11th, 12th

**Test Prep:** [CLEP exam](#)

**Course Description:** This course offers a semester (90 days) of trigonometry followed by a semester of pre-calculus. In trigonometry students will not only learn the basic trigonometric functions and how to apply them to solve real-life problems, but will explore a number of topics from trigonometry including: triangle properties, radian, identities, solving complex equations, inverse functions, vectors, and the polar coordinate system. Students will study and write proofs and learn about the Law of Sines and Cosines and their applications. Functions are the focus of the pre-calculus including: linear, polynomial, rational, logarithmic, and exponential functions. Students will graph functions, combine functions, interpret roots and find the maxima and minima of functions. Students will apply their knowledge to model and to solve real-world applications.

Students will be using CK-12 (trigonometry), Saylor.org (pre-calculus), and Khan Academy (SAT practice).

**Materials:**

You will need a calculator. You can use one [online](#). On Day 7 you will receive some instruction on how to use a calculator to solve trigonometric functions. You can learn about other calculator options (handheld, mobile, etc.) on this page under "[Tips/Suggestions](#)".

Print out some graph paper to have on hand. [Regular](#) [Polar](#) (for unit 6)

**Scoring:**

In trigonometry I am having you score 1 point per question (except where I note otherwise). If the question has two parts, you may award yourself a half point for getting one of the parts correct. When you check your answers. Take the time to figure out where your mistake was if you got one wrong.

**Testing:**

This is two courses in one. Each will have a final. On Day 90 and Day 180 you will have the final test for each course. The problems will all come from previous work in the course.

**Portfolio:**

Work in a single spiral notebook, or keep all loose-leaf paper in a single binder for the course. Hold onto your written notes and exercises. Use them to study and as a record of what you've done.

### Day 1(\*)

1. (\*)Print out your [first quarter](#) grading sheet or use the [Excel](#) version.
2. Go through [lesson 1.1](#) on the Pythagorean Theorem and the Distance Formula. It should be familiar! Try the examples before you look at the solutions.
3. Complete the review questions.
4. Check your [answers](#).
5. Record your score out of 11.

### Day 2

1. Go through [lesson 1.2](#) on Special Right Triangles. Work through the examples.
2. Complete the review questions.
3. Check your [answers](#).
4. Record your score out of 10.

### Day 3

1. Go through [lesson 1.3](#) on Basic Trigonometric Functions. Work through the examples.
2. Complete the review questions.
3. Check your [answers](#).
4. Record your score out of 9.

### Day 4

1. Go through [lesson 1.4](#) on Solving Right Triangles. Work through the examples.
2. Complete review questions 4-12.
3. Check your [answers](#).
4. Record your score out of 9.

### Day 5

1. Go through [lesson 1.5](#) on Measuring Rotation. Work through the examples.
2. Complete the review questions.
3. Check your [answers](#).
4. Record your score out of 10. (Each part of the multi-part questions is one point.)

### Day 6

1. Go through [lesson 1.6](#) on Angles of Rotation. Work through the examples.
2. Complete the review question 1.
3. Check your [answer](#).

### Day 7

1. Complete the review questions 2-9 and 11 for [lesson 1.6](#).
2. Check your [answers](#).
3. Score up to 2 points for each question except number seven is worth 5.
4. Record your score out of 21.

### Day 8

1. Go through [lesson 1.7](#) on Trig Functions of Any Angle. Work through the examples.
2. You will need to use a calculator today. See the note at the beginning of the course if you don't have one.
3. Complete review question number 9.
4. Check your [answer](#).

### Day 9

1. Go over [lesson 1.7](#) if necessary and complete review questions 1-8 and 10.
2. Check your [answers](#). (answer correction: 3b should read "undefined" not 0)
3. Record your score out of 28. (Multi-part questions each get their own point and the final table gets a point for each line.)

### Day 10

1. Go through [lesson 1.8](#) on Relating Trigonometric Functions. Work through the examples, don't just read them.
2. Do review question one and check your [answer](#).
3. This is the last chapter in unit 1. There will be a test on Day 12.

### Day 11

1. Go over [lesson 1.8](#) if necessary and complete review questions 2-10.
2. Check your [answers](#).
3. Record your score out of 22. (Number 2 is worth 11 points, for the table. Without explaining it, I will continue to give points for each table row and for each part of multi-part problems, listed as a. b. c., etc. I'll make notes of any changes to the scoring.)

### Day 12

1. Take the test on [unit one](#). Scroll down to find the questions. Do not use your notes.
2. Check your [answers](#).
3. Score two points per question. You may award partial credit where applicable.
4. Record your score out of 28.

### Day 13

1. Go through [lesson 2.1](#) on Radian Measure. Work through the examples.
2. Complete the review questions as follows. Do letters f-j for numbers 2 and 3. Complete 6b and number 7.
3. Check your [answers](#). (You can also mark these correct if you got: 2h  $2(\pi)/5$ , 3h -390 and 3i 145.9)
4. Record your score out of 16.

### Day 14

1. Go through [lesson 2.2](#) on Applications of Radian Measure and stop at “Angular Velocity.”
2. Complete review questions 1-4.
3. Check your [answers](#).
4. Record your score out of 12.

### Day 15

1. Finish [lesson 2.2](#) by reading and working through “Angular Velocity.”
2. Complete review questions 5 and 6.
3. Check your [answers](#).
4. Record your score out of 5.
5. Watch the first 10 minutes of this video [introduction to trigonometry](#).

### Day 16\*

1. Finish the video [introduction](#) and complete the [\\*worksheet](#) as you watch.
2. Feeling better about trigonometry?

### Day 17

1. Watch the first two videos on the [midline, amplitude and period of trigonometric functions](#). The second video is an example.
2. Now complete the three following exercises to practice (amplitude, midline, period). Complete each until you have five correct in a row.
3. Record your score out of 15. (If you followed the directions, then you got fifteen correct and your score is 15. See, it pays to follow the directions.)

### Day 18

1. Watch the video example of [graphing the sine function](#).
  - When you watch a video, don't just stare at the screen. Take notes. Be an active listener.
1. Watch the video example of graphing the [cosine function](#).
2. Watch the video example of the [intersection of these graphs](#).
3. Read the first two sections on this page about the [graphs of sine and cosine](#).

### Day 19

1. Watch the video example of [amplitude and period transformations](#).
2. Watch the video example of [amplitude and period of cosine transformations](#).
3. Watch the video example of [figuring out the trig function](#).
4. Complete the exercise on the graphs of [sine and cosine](#) until you have five correct in a row.
5. Record your score out of 5.

### Day 20

1. Watch the video on the [tangent graph](#).

2. Read the section on the [tangent graph](#).
3. Complete review questions 1-3.
4. Check your [answers](#). Understand the answers.
5. You will be scored only on number 3. There are 48 points. Record your score out of 24.
6. Give yourself up to two extra credit points for getting numbers 1 and 2 correct.

### Day 21

1. Read the last part of lesson 2.3 about the [inverse functions](#).
  - Make sure you are always taking notes. You won't be comfortable with trig unless you are comfortable with its language. You need to know all the new words. Do you have asymptote in your notes? What is an asymptote?
1. Complete review questions 4 and 5.
2. Check your [answers](#).
3. Record your score out of 8.

### Day 22

1. You've seen videos on this. You got this.
2. Read [lesson 2.4](#) on Translating Sine and Cosine.
3. Complete review questions 1-10.
4. Check your [answers](#).
5. Record your score out of 10.

### Day 23

1. Read [lesson 2.5](#) on Amplitude, Period and Frequency.
2. Complete review questions 3-5.
3. Check your [answers](#).
4. Record your score out of 12. (#5 is worth two points.)

### Day 24

1. There are two videos to watch on [sinusoidal graphs](#).
2. Then do the [exercise](#) that follows.

### Day 25

1. Go through the [lesson and examples](#) in lesson 2.6.
2. Complete review questions 3-8.
3. Check your [answers](#).
4. Record your score out of 6.

### Day 26

1. Go through [lesson 2.7](#) on Graphing Tangent, Cotangent, Secant, Cosecant.
2. Complete review questions 1, 3, 5, 7, 9.
3. Check your [answers](#).
4. Record your score out of 5.

**Day 27**

1. Complete the [even review questions](#).
2. Check your [answers](#).
3. Prepare for a test on unit 2 on Day 28.

**Day 28**

1. Complete your [test](#) on unit 2. Scroll down. Do not use your notes.
2. Check your [answers](#).
3. Record your score out of 28. You may award partial credit if deserving.

**Day 29**

1. Go through the [first three identity properties](#) in lesson 3.1. (You need notes on these to use for future proofs.)
2. Stop after you've gone through the Pythagorean Identity.
3. Do review questions 1 and 6.
4. Check your [answers](#).

**Day 30**

1. Go through the [last two identity properties](#) in lesson 3.1. (You need notes on these to use for future proofs.)
2. Do review questions 2, 3, 4, 7, 8, 9.
3. Check your [answers](#).
4. Record your score out of 7.

**Day 31**

1. Write the proof for [number 11](#).
2. Check your answer. Understand your mistakes.
3. Go through [lesson 3.2](#) on Proving Identities.

**Day 32**

1. Complete the [review questions](#) from lesson 3.2.
2. Check your [answers](#).
3. Score up to 2 points for each question.
4. Record your score out of 20.

**Day 33**

1. Read and work through the first five examples on solving [trigonometric equations](#) in lesson 3.3.
2. Complete the review questions 1-4.
3. Check your [answers](#).

**Day 34**

1. Read and work through the last five examples on solving [trigonometric equations](#) in lesson 3.3. Start with example 6.
2. Complete the review questions 5-10.
3. Check your [answers](#).
4. Record your score out of 8 (for Days 33 and 34). (Potential for extra credit)

### Day 35

1. Read and work through the examples through example 5 in [lesson 3.4](#) on the Sum and Difference Identities.
2. Then cover up the examples and try the problems yourself.
3. Check your work and understand your mistakes.
4. Go back and now and look up things you don't understand. Don't move on if you are lost. Ask for help. You can get tutoring help using the link at the top of the page.
5. Why are the variable between zero and two pi?
  - Zero and two pi are the same point on a circle, so between them is every angle on a circle. Make sure you understand why you do the things you do.

### Day 36

1. Read and work through the examples through rest of the examples in [lesson 3.4](#) on the Sum and Difference Identities. Start with example 6.
2. Then cover up the examples and try the problems yourself.
3. Check your work and understand your mistakes.

### Day 37

1. Complete the review questions for [lesson 3.4](#).
2. Check your [answers](#). Understand your mistakes.
3. Record your score out of 20. Add an extra credit point for either proof that you got perfect.

### Day 38

1. Read through lesson 3.5 on the [Double Angle Identity](#).
2. Work through the examples. Try steps on your own and check your work.

### Day 39

1. Complete the review questions for [lesson 3.5](#).
2. Check your [answers](#).
3. Record your score out of 19. (up to two points for the proof)

### Day 40

1. Read through lesson 3.6 on the [Half-Angle Identity](#).
2. Work through the examples. Try steps on your own and check your work.

### Day 41

1. Complete the review questions for [lesson 3.6](#).
2. Check your [answers](#).
3. Record your score out of 18. (up to two points for each proof)

#### Day 42

1. Go through the first section on Sums to Products in [lesson 3.7](#), Products, Sums, Linear Combinations, Applications.
2. Try examples one, two and three. You can stop after that.
3. Complete review questions 1 and 2.
4. Check your [answers](#). (ANSWER CORRECTION: #1 is  $2\sin 7x \cos 2x$ )
5. Record your score out of 4. (two points each)

#### Day 43

1. Go through the next section on Products to Sums in [lesson 3.7](#).
2. Try examples 4-7. You can stop after that.
3. Complete review questions 3 and 4.
4. Check your [answers](#).
5. Record your score out of 4. (two points each)

#### Day 44

1. Go through the last sections in [lesson 3.7](#), starting with triple-angle formulas.
2. Try examples 8-13. You can stop after that.
3. Complete review questions 10 and 11.
4. Check your [answers](#).
5. Record your score out of 4. (two points each)

#### Day 45

1. Finish the review questions in [lesson 3.7](#), questions 5-9.
2. Check your [answers](#).
3. Record your score out of 10. (two points each)
4. On Day 46 you are having your unit test and on Day 47 you are having a review test on units 1 and 2. Review your work.

STOP

Compute your first quarter grade. You should be aiming for an A. If you didn't get an A, think about why you lost points and what you can do differently next quarter. Make sure you are saving your work for studying and as a record of what you did in this course.

#### Day 46(\*)

1. (\*)Print out your [second quarter](#) grading sheet or use the [Excel](#) version.
2. Take your [test](#) on unit 3. (Do I have to keep saying it? Scroll down. No notes.)
3. Check your [answers](#).
4. Record your score out of 40. (two points each)



### Day 47

1. Review units 1 and 2.
2. Complete the [even problems 2-10](#) from unit 1. You may use the online textbook, but not the answer key! Or your past test!
3. Check your [answers](#). (10 points)
4. Complete [numbers 8-10](#) from unit 2. Same rules apply.
5. Check your [Unit 2 Review Answers](#) (14 points, 9 and 10 are six points each)
6. Record your score out of 24.

### Day 48

1. Take a breather. You are more than halfway through trigonometry already! I told you that you had to know and understand the language of trigonometry in order to know and understand the math.
2. Stop and review the language of trigonometry. Read through these vocabulary lists. Stop and think. Get these words in your vocabulary. (Okay, not all are really important words. You've already been through the chapters, so you know which words are ones you are supposed to know. Know them!)
3. [Unit 1 vocabulary](#)
4. [Unit 2 vocabulary](#)
5. [Unit 3 vocabulary](#)

### Day 49

1. Go through lesson 4.1 on [Basic Inverse Trigonometric Functions](#).
2. Make sure to try some examples on your own.

### Day 50

1. Complete the review questions for [lesson 4.1](#).
2. Check your [answers](#).
3. Record your score out of 14.

### Day 51

1. Go through [lesson 4.2](#) on Graphing Inverse Trigonometric Functions.
2. Make sure to try some on your own.

### Day 52

1. Complete the [review questions](#).
2. Check your [answers](#). (2 points each).
3. Record your score out of 10.

### Day 53

1. Read, take notes, and work through the first half of [lesson 4.3](#) on Inverse Trigonometric Properties, through example 5.
2. Complete review questions 1-4.

3. Check your [answers](#). (2 points each)
4. Record your score out of 8.

#### Day 54

1. Read, take notes, and work through the second half of [lesson 4.3](#) on Inverse Trigonometric Properties, starting with example 6.
2. Complete review questions 6-10.
3. Check your [answers](#). (2 points each)
4. Record your score out of 10.

#### Day 55

1. Use the examples to work through the review questions in [lesson 4.4](#) on applications and models.
2. You can continue to work on this on Day 56. On Day 57 you will have a test on this unit. You can use Day 56 to review as well.

#### Day 56

1. Review for your test on Day 57 and finish the review questions from [lesson 4.4](#).
2. Check your [answers](#). (2 points each)
3. Record your score out of 16.

#### Day 57

1. Review the [terms](#) at the top of the page and then scroll down and take your test.
2. Check your [answers](#). (2 points each)
3. Record your score out of 20.

#### Day 58

1. Work through Case #1 of lesson 5.1 on the [Law of Cosines](#). (Stop when you get to Case #2.)
2. Complete review questions 4 and 5.
3. Check your [answers](#). (2 points for each)
4. Record your score out of 4.

#### Day 59

1. Work through Case #2 of lesson 5.1 on the [Law of Cosines](#). (Stop when you get to "Identify Accurate Drawings....")
2. Complete review questions 2, 3 and 6.
3. Check your [answers](#). (#2 is 6 points, #3 is 3 points, #6 is two points)
4. Record your score out of 8. (1 point for each part)

#### Day 60

1. Finish lesson 5.1 on the [Law of Cosines](#). Start at the section on Identifying Accurate Drawings of General Triangles.

2. Complete review questions 1, 7-12.
3. Check your [answers](#).
4. Record your score out of 12.

#### **Day 61**

1. Go through the [lesson 5.2](#) on the Area of a Triangle.
2. Make sure to try some examples on your own.

#### **Day 62**

1. Complete the review questions for lesson 5.2.
2. Check your [answers](#). (Each labeled part of a problem is one point; all other problems are two points each.)
3. Record your score out of 26.

#### **Day 63**

1. Go through the first sections of [lesson 5.3](#) on The Law of Sines.
2. Complete review questions 1,2 and 3 (a, b and c).
3. Check your [answers](#).
4. Record your score out of 10.

#### **Day 64**

1. Review and finish [lesson 5.3](#).
2. Finish the review question 3 (d, e, f) and complete review questions 4-8 (2 points each).
3. Check your [answers](#).
4. Record your score out of 13.

#### **Day 65**

1. Go through the first part of [lesson 5.4](#) on The Ambiguous Case. Stop at "Using the Law of Cosines."
2. What does ambiguous mean?
3. Complete review questions 1 and 2.
4. Check your [answers](#).
5. Record your score out of 8.
6. Always take the time to learn from your mistakes.

#### **Day 66**

1. Review and finish [lesson 5.4](#).
2. Complete review questions 5-9.
3. You can complete number three for four extra credit points.
4. Check your [answers](#). (Number 6 has four parts.)
5. Record your score out of 22.

#### **Day 67**

1. Go through [lesson 5.5](#) on General Solutions of Triangles.
2. Take your time on the chart and make sure you know what each is.
3. Try the examples.

### Day 68

1. Complete the review questions for [lesson 5.5](#).
2. Complete review questions 4-9.
3. You can complete number 2 for up to five points of extra credit. Of course you should. Don't give up extra credit points. You want as high a score as you can get.
4. Check your [answers](#). (2 points each for all of them)
5. Record your score out of 12.

### Day 69

1. Go through vector subtraction in [lesson 5.6](#) on Vectors.
2. Complete review questions 1 and 2.
3. Check your [answers](#).
4. Record your score out of 9.

### Day 70

1. Review and complete [lesson 5.6](#).
2. Complete review questions 3-8.
3. Check your [answers](#) (2 points each).
4. Record your score out of 12.

### Day 71

1. Go through the first part of [lesson 5.7](#) on Component Vectors. Stop when you get to the section on the "Resultant of Magnitude and Direction."
2. Complete review questions 1 and 2.
3. Check your [answers](#).
4. Record your score out of 7.

### Day 72

1. Finish [lesson 5.7](#).
2. Complete review questions 3c through 8.
3. Complete number 9 for extra credit.
4. Check your [answers](#).
5. Record your score out of 6.
6. On Day 73 you are taking a test on unit 5.

### Day 73

1. Review your vocabulary and take your [test](#).
2. Check your [answers](#). (2 points each, even number 5-so that's a half point for each one in number 5)

3. Record your score out of 28.

#### Day 74

1. Complete [lesson 6.1](#) on Polar Coordinates. (Do you have the right kind of graph paper? Check out the note at the beginning of the course if you don't.)
2. Check your [answers](#). (14 answers to the 4 problems)
3. Record your score out of 14.

#### Day 75

1. Go through the first half of [lesson 6.2](#) on Polar Coordinates. Stop at "Applications."
2. Complete review questions 1 and 2.
3. Check your [answers](#).
4. Record your score out of 9.

#### Day 76

1. Finish [lesson 6.2](#).
2. Complete review questions 3 and 4.
3. Check your [answers](#). (3 points for number 3)
4. Record your score out of 9.

#### Day 77

1. Go through lesson 6.3 on [Converting Between Systems](#).

#### Day 78

1. Complete the review questions for [lesson 6.3](#).
2. Check your [answers](#).
3. Record your score out of 16 (each problem has four parts.)

#### Day 79

1. Go through [lesson 6.4](#) on Polar Curves.

#### Day 80

1. Complete the review questions for [lesson 6.4](#).
2. Questions 7 and 8 are extra credit. Try them!
3. Check your [answers](#). (2 points each)
4. Record your score out of 12.

#### Day 81

1. Go through lesson 6.5 on the [Trigonometric Form of Complex Numbers](#).

#### Day 82

1. Complete the review questions for [lesson 6.5](#).
2. Check your [answers](#). (numbers 2 and 4 are worth 2 points)

3. Record your score out of 14.

### Day 83

1. Go through lesson 6.6 on the [Product and Quotient Theorems](#).

### Day 84

1. Complete review questions 1-4 for [lesson 6.6](#).
2. Complete number 8 for extra credit.
3. Check your [answers](#). (2 points each for numbers 2-4)
4. Record your score out of 10.
5. On Day 85 you will take a test on unit 6.

### Day 85

1. Review your vocabulary and take the [test](#) for unit 6.
2. Check your [answers](#).
3. Record your score out of 23.

### Day 86

1. Prepare for your midterm/trigonometry final on Day 90.
2. Questions can come from your quizzes and tests and from the review questions.
3. Retry questions from each unit.

### Day 87

1. Prepare for your midterm/trigonometry final on Day 90.
2. Questions can come from your quizzes and tests and from the review questions.
3. Retry questions from each unit.

### Day 88

1. Prepare for your midterm/trigonometry final on Day 90.
2. Questions can come from your quizzes and tests and from the review questions.
3. Retry questions from each unit.

### Day 89

1. Prepare for your midterm/trigonometry final on Day 90.
2. Questions can come from your quizzes and tests and from the review questions.
3. Retry questions from each unit.

### Day 90

1. Take your [trigonometry final](#).
2. Check your [answers](#). (Correction: #10 is found in 3.3, not 3.2) ([find your answers](#))
3. Record your score out of 50. (There is a possible one point extra credit.)

STOP

Compute your second quarter grade. You should be aiming for an A. If you didn't get an A, think about why you lost points and what you can do differently next quarter. Make sure you are saving your work for studying and as a record of what you did in this course. You can figure your trigonometry grade by combining the two semesters. You can combine that with your Pre-Calculus grade and record it on your transcript as a one-year, one-credit course (which would be normal for a public school), or you can record your trigonometry grade on your transcript as a half-credit course.

### Day 91(\*)

1. (\*)Print out your [third quarter](#) grading sheet or use the [Excel](#) version.
2. Today we begin a new half-year course, Pre-Calculus. I'm going to be linking to each chapter of the online textbook individually for using online, but if you'd like to download the [whole text](#) now for offline use, you can use the link found here. It also has a link to the answers for the whole book and links to buy the book.
3. This course will start with some review of what you've learned already in algebra. And since it will be so easy for you :), we will start doing two SAT questions a day. If you don't have an account, you can make one with [Khan Academy](#). Choose two math questions to do each day.
4. We're going to be using a course from Saylor.org. You can follow my daily instructions [here](#).
5. Read the [intro to sections 1.1 and 1.1.1](#).
6. Read pages [one and two](#). As you go, answer the "Try It Now" questions. (Answers are on page 12.)

### Day 92

1. Do two [SAT questions](#).
2. Watch the video on [function notation](#).
3. Evaluate the [functions](#).
4. Read pages two through four in the [online textbook](#). Do the "Try It Now" question 3 at the top of page 5. (Answers are on page 12.)

### Day 93

1. Do two [SAT questions](#).
2. Read [page five](#) in the textbook. Do the TIN question 4. Answers are on page 12.
3. Watch the video on [evaluating a function](#).

### Day 94

1. [Do two SAT questions](#).
2. Practice [evaluating expressions with function notation](#).
3. Watch this short video on the [vertical line test](#).
4. Read through [pages 5-7](#) in the online textbook. As before, always work through examples on paper.
5. Do the TIN question 5 on page 7. Answers are on page 12.

### Day 95

1. [Do two SAT questions.](#)
2. Read the introductory material from Saylor.org. *“Think of it: If you know the diameter of a circle, you can find the circumference. It is a function because one particular diameter will ALWAYS yield one particular circumference – it won’t change. This subunit looks at relations and how to rewrite them to clarify the functional relation. For example: if  $x + y = 5$ , you can rearrange the algebra to write  $y = 5 - x$ . This would identify a function we might call  $g$ , and the algebraic description would be  $g(x) = 5 - x$ . “*
3. Read through [pages 7-10](#) in the online textbook. As before, always work through examples on paper. Complete the TIN question on page 10. Check your answer on page 12.

### Day 96

1. [Do two SAT questions.](#)
2. Read through [pages 10-12](#) in the online textbook. As before, always work through examples on paper. Pay attention to the shapes of the functions.
3. Make a chart of these toolkit functions and keep it in a handy place to refer to during the course.

### Day 97

1. Complete the odd problems in [pages 13 – 16](#) in the online textbook.
2. Check your [answers](#), 1.1. Understand your mistakes.

### Day 98

1. Complete the odd problems on [pages 17 – 19](#) in the online textbook.
2. Check your [answers](#), 1.1. Understand your mistakes. Your final exam will be made up of questions from the exercises you will be completing during the course.
3. Record your score out of 24.

### Day 99

1. [Do two SAT questions.](#)
2. Watch the video on [set builder notation](#).
3. Read through [pages 21-24](#) in the online textbook.
4. Do the TIN questions as you come to them.
5. Check your answers on page 30.

### Day 100

1. [Do two SAT questions.](#)
2. Watch the video on [finding domain and range of a function](#) using a graph.
3. Read through [pages 24-27](#) in the online textbook. As always, complete the TIN question when you come to it.
4. Check your answer on page 30.



### Day 101

1. [Do two SAT questions.](#)
2. Watch the video on [piecewise functions](#).
3. Read through [pages 28-30](#) in the online textbook. As always, complete the TIN question when you come to it.
4. Check your answer.

### Day 102

1. Complete the [odd problems](#) numbers 1-35 on pages 31 through 33 in the online textbook.
2. Check your [answers](#), 1.2. Score up to two points each.
3. Record your score out of 30. (potential for extra credit)

### Day 103

1. [Do two SAT questions.](#)
2. Watch the video on [rate of change](#). ([youtube](#))
3. Read through [pages 34-37](#) in the online textbook. As always, complete the TIN questions when you come to them.
4. Check your answers on page 44.

### Day 104

1. [Do two SAT questions.](#)
2. Click on the [questions](#) and answer them. (Uses shockwave flash)
3. Read through [pages 38-43](#) in the online textbook. As always, complete the TIN questions when you come to them.
4. Check your answers on page 44.

### Day 105

1. Complete the [odd problems](#) from pages 46 to 48 in the online textbook.
2. Check your [answers](#), 1.3. (up to two points each)
3. Record your score out of 40. (potential for extra credit)

### Day 106

1. [Do two SAT questions.](#)
2. Watch this short video on the [composition of functions](#).
3. Read pages 49-51 of the chapter on the [composition of functions](#). As always, answer any TIN questions as you come to them.
4. Check your answers on page 56.

### Day 107

1. [Do two SAT questions.](#)
2. Watch the video on the [composition of functions](#).

3. Read from page 51 to 55 of the chapter on the [composition of functions](#). As always, answer any TIN questions as you come to them.
4. Check your answers on page 56.

### Day 108

1. Do the [odd numbered exercises](#) for chapter 1.4, numbers 1-43.
2. Check your [answers](#), 1.4. (Score up to two points for each problem.)
3. Record your score out of 40. (potential for extra credit)

### Day 109

1. [Do two SAT questions](#).
2. Read the section on shifts in the [online textbook](#), pages 61-67. Stop at “Reflections.”
3. Remember to work through examples and do the TIN questions.
4. Check your answers on page 81.

### Day 110

1. [Do two SAT questions](#).
2. Read the section in your online textbook on [reflections](#), pages 67-70.
3. Check the answers to the TIN question on page 81.
4. Watch the [video](#) on odd/even functions.

### Day 111

1. Work through the [graphs and functions](#) in the exercises on transformations. (This can load slowly.)
  - o Click to see the solutions.
1. Read [pages 71-76](#) through the TIN question on 76.
2. Check your answers on page 81.

### Day 112

1. Complete the [last four exercises](#) on this page. (You’ll need graph paper. And be patient, it takes awhile to come up.)
2. Watch this lesson on [transformations in combination](#).
3. Work through [pages 76-80](#).
4. Check your answer on page 80.

### Day 113

1. [Do every fourth problem](#) – 1, 5, 9, 13, 17,... from problems 1-99 starting on page 82.
2. Do problem 99 for up to 6 points of extra credit!
3. Check your [answers](#), 1.5. (up to two points each)
4. Record your score out of 48.

### Day 114

1. Watch the video on [function inverses](#).

2. Work through [pages 90-95](#).
3. Check your answers on page 95.

### Day 115

1. Starting on page 96, complete the [odd problems](#).
2. Check your [answers](#), 1.6. (up to two points each)
3. Record your score out of 24.

### Day 116

1. [Do two SAT questions](#).
2. Try the [diagnostic quiz](#). What do you know? What do you need to know? (This is a shockwave flash file. If you can't use it, no sweat. Continue on with the rest of the lesson.)
3. Here is [chapter two](#) of our online textbook. Today read pages 99-101. As always work through the examples on paper and complete any Try It Now (or now, Flashback) questions. Today complete the TIN question at the top of 102.
4. Check your answers on page 106.

### Day 117

1. [Do two SAT questions](#).
2. Today read pages 102-106 in your [online textbook](#). As always work through the examples on paper and complete any Try It Now (or now, Flashback) questions.
3. Check your answers on page 106.
4. Watch the video on [average rate of change](#). ([youtube](#))

### Day 118

1. Today complete the odd numbered questions, #1-49, beginning on page 107 in your [online textbook](#).
2. Check your [answers](#), 2.1. Score up to two points per problem.
3. Record your score out of 50.

### Day 119

1. Today work through [pages 111-117](#) in your online textbook. You can stop at Parallel and Perpendicular Lines.
2. Check your answers on page 121.

### Day 120

1. Today work through [pages 117-121](#) in your online textbook.
2. Check your answers on page 121.
3. There were six sets of exercises in chapter 1. Do [two odd problems](#) from the first set of exercises. You may use the online textbook to review how to do problems if you need to, but you may not use the solutions! (We'll record the score for this on Day 130.)

### Day 121

1. Today complete the odd numbered questions, #1-51, beginning on page 122 in your [online textbook](#).
2. Check your [answers](#), 2.2. Score up to two points per problem.
3. Record your score out of 50. (potential for extra credit)

### Day 122

1. Today work through [pages 126-133](#) in your online textbook.
2. There were six sets of exercises in chapter 1. Do [two odd problems](#) from the second set of exercises. You may use the online textbook to review how to do problems if you need to, but you may not use the solutions! (Hold onto your cumulative scores.)

### Day 123

1. Today complete the odd numbered questions, #1-21, beginning on page 134 in your [online textbook](#).
2. Check your [answers](#), 2.3. Score up to two points per problem.
3. Record your score out of 20. (potential for extra credit)

### Day 124

1. Go through this introduction on [trend lines](#) and answer the questions. Scroll down for answers.
2. Work through [pages 138-139](#). Remember to answer Flashback questions as you would TIN questions.
3. Answers are on page 143.
4. Complete this [matching activity](#).
5. There were six sets of exercises in chapter 1. Do [two odd problems](#) from the third set of exercises. You may use the online textbook to review how to do problems if you need to, but you may not use the solutions! (Hold onto your score from these problems, along with those from the first two sets.)

### Day 125

1. Play with the [Correlation Experiment](#) and make observations about the correlation coefficient.
2. Work through [pages 139-143](#).
3. Answers are on page 143.
4. There were six sets of exercises in chapter 1. Do [two odd problems](#) from the fourth set of exercises. You may use the online textbook to review how to do problems if you need to, but you may not use the solutions! (Hold onto your score.)

### Day 126

1. Today complete ALL the questions, #1-14, beginning on page 144 in your [online textbook](#).
2. Check your [answers](#), 2.4. Score up to two points per problem.

- Record your score out of 28.

### Day 127

- Work through [pages 146-149](#).
- Answers are on page 152.
- There were six sets of exercises in chapter 1. Do [two odd problems](#) from the fifth set of exercises. You may use the online textbook to review how to do problems if you need to, but you may not use the solutions! Hold onto your score.

### Day 128

- Watch the video on the connection between [distance and absolute value](#).
- Work through [pages 149-152](#).
- Answers are on page 152.
- There were six sets of exercises in chapter 1. Do [two odd problems](#) from the sixth set of exercises. You may use the online textbook to review how to do problems if you need to, but you may not use the solutions! (Add up all your scores from the twelve problems and hold onto it.)

### Day 129

- Today complete the odd questions, #1-25, beginning on page 153 in your [online textbook](#).
- Check your [answers](#), 2.5. Score up to two points per problem. (ANSWER CORRECTION: #3 should be:  $f(x) = -3|x-3|+3$ )
- Record your score out of 25. (potential for one point extra credit)

### Day 130

- I had to change the order of some exercises, which is why this score got spread out to exercises over the last couple of weeks. Good news! Each correct answer is worth up to four points. You can record it now. I hope that served as a good review of the first chapter.
- Record your score out of 48.
- [Do two SAT questions](#).
- Choose [Unit 3](#) and read the introduction.
- Work through pages [155 to 157 in chapter 3](#). Stop at Polynomials. As usual, answer the “Try It Now” questions when you come to them.

### Day 131

- [Do two SAT questions](#).
- Work through pages [157 to 161 in chapter 3](#). As usual, answer the “Try It Now” questions when you come to them.
- Watch the video on the [“End Behavior or Long Run Behavior of Functions.”](#)

### Day 132

1. Do the [odd questions](#) on page 162, #1-33.
2. Check your [answers](#), 3.1. Score up to two points per problem.
3. Record your score out of 30. (potential for extra credit)

### Day 133

1. [Do two SAT questions.](#)
2. Watch the video on [graphing quadratic functions](#).
3. Work through pages [163 through to the end of 165](#). As usual, answer the “Try It Now” questions when you come to them.
4. Check your answers on page 171.

### Day 134

1. [Do two SAT questions.](#)
2. Work through pages [166 to 168](#). As usual, answer the “Try It Now” questions when you come to them. Stop at “Short Run Behavior.”
3. Check your answers on page 171.
4. Watch this video on the “[Vertex and Root of Parabola](#).”

### Day 135

1. [Do two SAT questions.](#)
2. Answer the questions to [review factoring](#). Keep at the problems until you get a check mark. (This is a shockwave flash activity. If you can't use it, you can review [factoring quadratics](#) on this page.)
3. Work through pages [168 to 171](#). As usual, answer the “Try It Now” questions when you come to them.
4. Check your answers on page 171.

### STOP

Compute your grade for the third quarter. You have one last quarter to raise your grade or to keep it up. Finish strong. Hold onto your written work for studying and as a record of what you did for this course.

### Day 136(\*)

1. (\*)Print out your [fourth quarter](#) grading sheet or use the [Excel](#) version.
2. Do the [odd questions #1-39](#) starting on page 172.
3. Check your [answers](#), 3.2. Score up to two points for each question.
4. Record your score out of 40.

### Day 137

1. [Do two SAT questions.](#)
2. Find the roots of the [polynomial functions](#). (Shockwave Flash)
3. Work through [pages 176 and 177](#), stopping after the TIN question.
4. Answers are on page 184.
5. If you found today's lesson short, take your extra time to review your trig!

### Day 138

1. [Do two SAT questions.](#)
2. Read this introduction to the next section from [Saylor.org](#).
  - *A polynomial function has only one vertical intercept, because otherwise it would not be a function. It can, however, have multiple horizontal intercepts. At a horizontal intercept, the function may change sign or loop back into the same vertical half of the coordinate grid. Mathematicians, scientists, businesspeople, and others develop functions to model real-world behavior, such as the trajectory of a meteor, the growth of income in a company, the intensity of earthquakes, and climate change. A function model makes it possible to study phenomena and to better predict future outcomes.*
1. Watch this video on “[Graphs of Polynomial – End Behavior, Zeros, Multiplicity.](#)”
2. Work through [pages 177 to 179](#). Stop at Solving Polynomial Equations.
3. Answers are on page 184.

### Day 139

1. [Do two SAT questions.](#)
2. Watch the video on [Solving a Polynomial Inequality](#).
3. Work through [pages 179 to the end of the section on 181](#).
4. Answers are on page 184.

### Day 140

1. [Do two SAT questions.](#)
2. Work through [pages 181 to 184](#).
3. Answers are on page 184.

### Day 141

1. Do the [odd problems](#) from pages 185-187, #1-49.
2. Do number 51 for extra credit.
3. Check your [answers](#), 3.3. Score up to two points for each problem.
4. Record your score out of 50.

### Day 142

1. [Do two SAT questions.](#)
2. Read this intro to the next section from [Saylor.org](#).
  - *Rational Functions look like fractions, and their graphs are complex. Brushing up on your earlier fraction skills will help enormously in this subunit because algebraic fractions work in a parallel way – like when you need a common denominator. This subunit begins by defining a rational function and identifying its characteristics. It continues by exploring graphs of rational functions and helps you determine asymptotes and intercepts.*
1. Watch the video on the [Asymptotes of Rational Functions](#).

2. Work through [pages 188-191](#) until the next section begins. As always do the TIN questions as you come to them.
3. Check your answers on page 199.

#### Day 143

1. [Do two SAT questions.](#)
2. Work through [pages 191-195](#).
3. Answers are on page 200.
4. Watch the video on [Determining Vertical and Horizontal Asymptotes](#).

#### Day 144

1. [Do two SAT questions.](#)
2. Work through [pages 195-199](#).
3. Answers are on page 200.

#### Day 145

1. Do the [odd numbered problems #1-43](#) starting on page 201.
2. Do number 40 for up to four points extra credit.
3. Check your [answers](#), 3.4. Score up to two points per problem.
4. Record your score out of 42.

#### Day 146

1. [Do two SAT questions.](#)
2. Work through [pages 206-211](#).
3. Answers are on page 211.

#### Day 147

1. Do the [odd numbered problems #1-23](#) starting on page 212.
2. Check your [answers](#), 3.5. Score up to two points per problem.
3. Record your score out of 24.

#### Day 148

1. There were five sets of exercises in chapter 2. Do [four odd problems](#) from each set of exercises. It's better for you to choose each one from a different section to get more review. You may use the textbook review, but not the solutions!
2. Check your [answers](#). (up to two points each)
3. Record your score out of 40.

#### Day 149

1. [Do two SAT questions.](#)
2. Review [exponent rules](#). (If you need to [review](#) this, you can use these links.)
3. Work through pages [215-219](#) (until the start of the next section.) As usual, complete the TIN questions as you come to them.



- Answers are on page 227.

### Day 150

- [Do two SAT questions.](#)
- Watch the video on [Exponential Growth Functions](#). ([youtube](#))
- Work through pages [219-221](#). As usual, complete the TIN questions as you come to them.
- Answers are on page 227.

### Day 151

- [Do two SAT questions.](#)
- Watch the video introduction to [compound interest](#). ([youtube](#))
- Work through pages [222-224](#) (to the start of the next section). As usual, complete the TIN questions as you come to them.
- Answers are on page 227.

### Day 152

- [Do two SAT questions.](#)
- Finish the unit working through pages [224-227](#). As usual, complete the TIN questions as you come to them.
- Answers are on page 227.
- Do [problem 37](#) on page 231.
- Check your [answers](#).
- Record your score out of 4. (potential for one point extra credit)

### Day 153

- Do the [odd numbered questions 1-35](#), starting on page 228.
- Check your [answers](#), 4.1. Score up to two points per question.
- Record your score out of 35. (potential for one point extra credit)

### Day 154

- [Do two SAT questions.](#)
- Watch the video on [graphing exponential functions](#). ([youtube](#))
- Work through pages [232-235](#) (to the start of the next section). As usual, complete the TIN questions as you come to them.
- Answers are on page 239.

### Day 155

- [Do two SAT questions.](#)
- Watch the video on [transformations of graphs](#). Take notes. Pause and draw graphs.

### Day 155

- [Do two SAT questions.](#)

2. Work through pages [235-239](#) (to the start of the next section). As usual, complete the TIN questions as you come to them.
3. Answers are on page 239.

### Day 156

1. Do the [odd numbered questions 1-35](#), starting on page 240.
2. Check your [answers](#), 4.2. Score up to two points per question.
3. Record your score out of 35. (potential for one point extra credit)

### Day 157

1. [Do two SAT questions.](#)
2. Work through pages [242-244](#). As usual, complete the TIN questions as you come to them.
3. Answers are on page 250.
4. Check your understanding of [logarithms](#) with these problems. (This is a shockwave flash file. If you can't use it, you could do the [first four example problems](#) on this page.) You could also use that second link if you want to hear someone else explain logarithms to you. They do have a point! They make some complicated equations easier to deal with.

### Day 158

1. [Do two SAT questions.](#)
2. Work through pages [244-245](#). As usual, complete the TIN questions as you come to them.
3. Answers are on page 250.
4. Watch the [video](#) on calculators for natural logarithms. ([youtube](#))

### Day 159

1. Work through pages [245-247](#). As usual, complete the TIN questions as you come to them.
2. Answers are on page 250.
3. Watch the [video](#) on change of base rules.

### Day 160

1. Work through pages [247-250](#). As usual, complete the TIN questions as you come to them.
2. Answers are on page 250.
3. Watch the [video](#) on solving exponential equations.

### Day 161

1. Do the [odd numbered questions 1-35](#), starting on page 251.
2. Check your [answers](#), 4.3. Score up to two points per question.
3. Record your score out of 35. (potential for one point extra credit)

### Day 162

1. Do the [odd numbered questions 37-71](#), starting on page 251.
2. Check your [answers](#), 4.3. Score up to two points per question.
3. Record your score out of 35. (potential for one point extra credit)

### Day 163

1. [Do two SAT questions.](#)
2. Work through pages [253-254](#). As usual, complete the TIN questions as you come to them and work through examples.
3. Answers are on page 259.

### Day 164

1. [Do two SAT questions.](#)
2. Read the page on [understanding logarithms](#). Watch the video at the bottom of the page on logarithm properties. ([youtube](#))
3. Play this Java game to [practice logs](#). (If you can't use the Java game, [here's a place](#) to see what you can do.)

### Day 165

1. [Do two SAT questions.](#)
2. Work through pages [255-256](#). As usual, complete the TIN questions as you come to them and work through examples.
3. Answers are on page 259.
4. Watch the video on [solving logarithmic equations](#).

### Day 166

1. [Do two SAT questions.](#)
2. Watch another video on [solving logarithmic equations](#).
3. Work through pages [256-259](#).

### Day 167

1. Do the [odd numbered questions 1-25](#), on page 260.
2. Check your [answers](#), 4.4. Score up to two points per question.
3. Record your score out of 25. (potential for one point extra credit)

### Day 168

1. Do the [odd numbered questions 27-47](#), on page 261.
2. Check your [answers](#), 4.4. Score up to two points per question.
3. Record your score out of 22.

### Day 169

1. Watch the video on [graphing natural logarithms](#). ([youtube](#))
2. Watch the video on [graphing logarithmic functions](#). ([youtube](#))

3. Work through pages 262 and 263 in the [online textbook](#).
4. Answers are on page 267.

### Day 170

1. Watch the video on [transformations of logarithmic functions](#).
2. Work through pages 262 and 263 in the [online textbook](#).

### Day 171

1. Do the [odd numbered questions 1-23](#), on page 268.
2. Check your [answers](#), 4.5. Score up to two points per question.
3. Record your score out of 24.

### Day 172

1. Work through pages 270 – 274 in the [online textbook](#).
2. Answers are on Day 282.
3. Your final for pre-calculus is on Day 180. All problems will be from your test/exercises you've been doing.

### Day 173

1. Work through pages 274 – 276 in the [online textbook](#).
2. Answers are on Day 282.

### Day 174

1. Work through pages 276 – 282 in the [online textbook](#).

### Day 175

1. Do the [odd numbered questions 1-39](#), on page 283.
2. Check your [answers](#), 4.6. Score up to two points per question.
3. Record your score out of 40.

### Day 176

1. Look at, and understand, the [four graphs](#), linear and logarithmic.
2. Work through pages 289 – 292 in the [online textbook](#).
3. Answers are on page 294.

### Day 177

1. Work through pages 292 – 294 in the [online textbook](#).

### Day 178

1. Do the [odd numbered questions 1-15](#), on page 295.
2. Check your [answers](#), 4.7. Score up to two points per question.
3. Record your score out of 16.

**Day 179**

1. Your final exam is on Day 180.
2. Review your work from the second half of the year.
3. Today you can also look at these ways what you just learned is [useful](#).

**Day 180**

1. Take your [final](#).
2. Check your answers: [chapter 1](#), [chapter 2](#), [chapter 3](#), [chapter 4](#).
3. Record your score out of 100.
4. Figure your grade for Pre-Calculus. You can take your two course scores and multiply them by 50% each to get your final grade for the course.
5. Congratulations on finishing Pre-Calculus with Trigonometry!