

algebra

1

placement test



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www.thinkwellhomeschool.com

Welcome!

Thank you for your interest in Thinkwell. We know the curriculum selection process for your homeschool student can be challenging. This Placement Test was created to provide you with a tool to place your student in the appropriate level of math.

Please keep in mind, no placement test is perfect. If you have questions or concerns about the results of your student's placement test, reach out to us at Thinkwell support: support@thinkwell.com.

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Instructions and Overview

This placement test consists of 25 free-response questions. There is no time-limit for the test, but it shouldn't take your student longer than an hour to an hour and a half to complete. Your student should work each problem to the best of their ability. If they are unable to answer an item, tell them to move on to the next item and leave the question unanswered.

The Algebra 1 placement test will assess your student's aptitude for the following skill areas:

- Simplifying powers.
- Arithmetic with integers and fractions.
- Using the order of operations.
- Writing inequalities.
- Finding the absolute value of real numbers.
- Finding the opposite of integers.
- Simplifying and evaluating algebraic expressions.
- Identifying solutions of equations.
- Solving linear equations.
- Writing the prime factorization of numbers.
- Identifying terms in sequences.
- Interpreting graphs.
- Identifying the location of points on a coordinate plane.

We recommend you **print the question portion of this document (pages 4–6)** so your student can work out the problems with pencil and paper.

Please be aware that **the answer key for this test starts on page 8**. We advise you to share the answer key with your student only after they've completed the test in its entirety.

Video solutions for all the question items on this test are available by clicking the solution link in the answer key.

Questions? Concerns? Please reach out to us at support@thinkwell.com.

Thinkwell Homeschool Algebra 1 Placement Test

1. Find the value.
 6^2

6. Multiply.
 $-8\left(2\frac{4}{5}\right)$

2. Find the value.
 3^4

7. Simplify the expression.
 $12 - 20 \div (5 \cdot 2)$

3. Find the product.
 $-5 \cdot (-3)$

8. Write an inequality for the situation.
There are at least 45 people on the bus.

4. Find the sum.
 $\frac{1}{6} + \frac{2}{7}$

9. Graph the integer 2 and its opposite on a number line.



5. Find the quotient.
 $36 \div (-4)$

10. Find the absolute value.
 $|2|$

11. Find the absolute value.

$$|-3|$$

12. Divide.

$$\frac{5}{12} \div \frac{3}{4}$$

13. Evaluate $n - 1$ for $n = 7$.

14. Identify the like terms in the list.

$$3x^2, 8y, a, \frac{4}{5}y, x^2, 3x, \frac{y^2}{5}, 4a^2, -x, -7a^2$$

15. Simplify.

$$9a + 11a$$

16. Write an expression for the missing value in the table.

Bella's Age	Martha's Age
5	3
6	4
7	5
n	

17. Determine whether $s = 7$ is a solution of $11 = s - 4$.

18. Determine whether $s = 15$ is a solution of $11 = s - 4$.

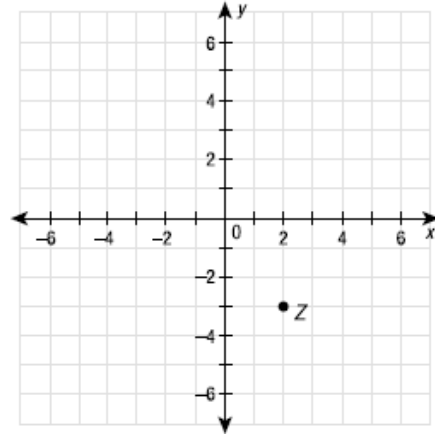
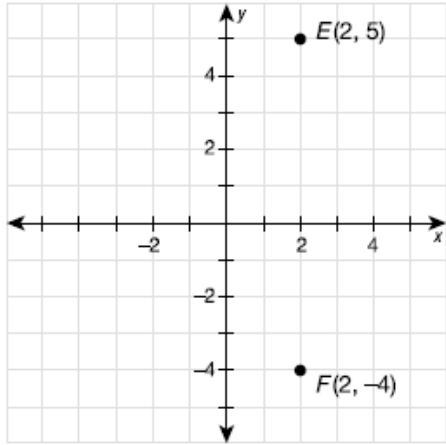
19. Solve the equation.
 $x + 22 = 58$

20. Solve the equation.
 $35 = y - 6$

21. Write the prime factorization of 140.

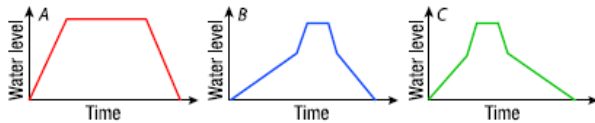
25. Name the quadrant where the point Z is located.

22. Find the distance between points E and F.



23. Identify the missing terms.
 3, 10, 6, 15, 9, 20, 12, [], [], [], ...

24. Match a graph with the following situation.
Suppose an empty tub is filled with water from a high-pressure faucet until the level is 1/2 the tub's height. A person gets into the tub and after a few minutes gets out and releases the drain. The water slowly drains.



Scoring Guide

Use the scoring rubric below to help determine if Algebra 1 is the appropriate course for your student.

Your placement test score and corresponding course recommendation should not be the only determining factor when deciding the appropriate course for your student. Your student's grade-level experience in previously completed math courses should also be considered.

Please feel free to contact a Thinkwell representative at support@thinkwell.com if you'd like to discuss your student's course placement in greater detail.

<u>Number of questions correct</u>	<u>Course recommendation</u>
7 or less	Grade 8 or Prealgebra
8 – 20	Algebra 1
21 or more	Honors Algebra 1

See the Answer Key page for answers and explanations for all placement test questions.

Wondering about the difference between Algebra 1 and Honors Algebra 1? Here's a brief overview:

Algebra 1 vs. Honors Algebra 1:

Honors Algebra 1 is a faster-paced, more rigorous course than our standard Algebra 1 course. Both courses will prepare your student for success in Geometry, Algebra 2 and beyond; however, if you anticipate your student going on to higher level mathematics, like Precalculus or Calculus, the Honors sequence will benefit your student. In brief:

- The content in Honors Algebra 1 covers a greater scope and includes more advanced concepts than the standard Algebra 1.
- Each of the 103 daily lessons in Honors Algebra 1 includes an average of 15 minutes of video content, while each of the 77 daily lessons in the standard Algebra 1 includes an average of 10 minutes of video content.
- The assessments in Honors Algebra 1 provide students with questions that are a higher level of difficulty than those in the standard Algebra 1.

answer
key



1. Find the value.
 6^2

Answer: 36

View Video Explanation: [Introduction to Exponents](#)

2. Find the value.
 3^4

Answer: 81

View Video Explanation: [Introduction to Exponents](#)

3. Find the product.
 $-5 \cdot (-3)$

Answer: 15

View Video Explanation: [Multiplying and Dividing Integers](#)

4. Find the sum.
 $\frac{1}{6} + \frac{2}{7}$

Answer: 19/42

View Video Explanation: [Adding and Subtracting Rational Numbers](#)

5. Find the quotient.
 $36 \div (-4)$

Answer: -9

View Video Explanation: [Multiplying and Dividing Integers](#)

6. Multiply.
 $-8 \left(2\frac{4}{5} \right)$

Answer: $-22\frac{2}{5}$

View Video Explanation: [Multiplying Rational Numbers](#)

7. Simplify the expression.
 $12 - 20 \div (5 \cdot 2)$

Answer: 10

View Video Explanation: [Using the Order of Operations](#)

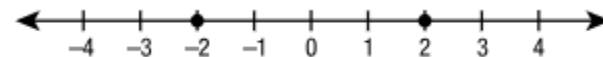
8. Write an inequality for the situation.
There are at least 45 people on the bus.

Answer: People ≥ 45

View Video Explanation: [Introduction to Inequalities](#)

9. Graph the integer 2 and its opposite on a number line.

Answer:



View Video Explanation: [Integers](#)

10. Find the absolute value.
 $|2|$

Answer: 2

View Video Explanation: [Integers](#)

11. Find the absolute value.

$$|-3|$$

Answer: 3

View Video Explanation: [Integers](#)

12. Divide.

$$\frac{5}{12} \div \frac{3}{4}$$

Answer: 5/9

View Video Explanation: [Dividing Rational Numbers](#)

13. Evaluate $n - 1$ for $n = 7$.

Answer: 6

View Video Explanation: [Variables and Algebraic Expressions](#)

14. Identify the like terms in the list.

$$3x^2, 8y, a, \frac{4}{5}y, x^2, 3x, \frac{y^2}{5}, 4a^2, -x, -7a^2$$

Answer:

$$3x^2 \text{ and } x^2; 8y \text{ and } \frac{4}{5}y; 3x \text{ and } -x; 4a^2 \text{ and } -7a^2$$

View Video Explanation: [Simplifying Algebraic Expressions](#)

15. Simplify.

$$9a + 11a$$

Answer: 20a

View Video Explanation: [Simplifying Algebraic Expressions](#)

16. Write an expression for the missing value in the table.

Bella's Age	Martha's Age
5	3
6	4
7	5
n	

Answer: $n - 2$

View Video Explanation: [Translating Between Tables and Expressions](#)

17. Determine whether $s = 7$ is a solution of $11 = s - 4$.

Answer: no

View Video Explanation: [Equations and Their Solutions](#)

18. Determine whether $s = 15$ is a solution of $11 = s - 4$.

Answer: yes

View Video Explanation: [Equations and Their Solutions](#)

19. Solve the equation.

$$x + 22 = 58$$

Answer: 36

View Video Explanation: [Adding Equations](#)

20. Solve the equation.

$$35 = y - 6$$

Answer: 41

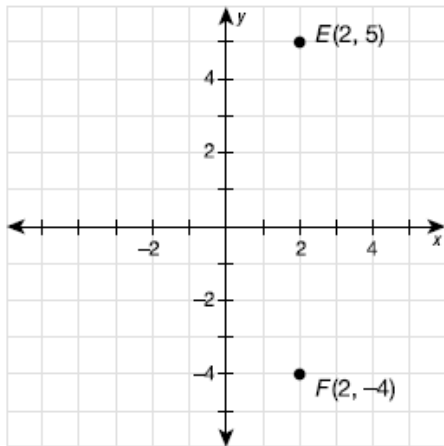
View Video Explanation: [Subtraction Equations](#)

21. Write the prime factorization of 140.

$$\text{Answer: } 2^2 \cdot 5 \cdot 7$$

View Video Explanation: [Prime Factorization](#)

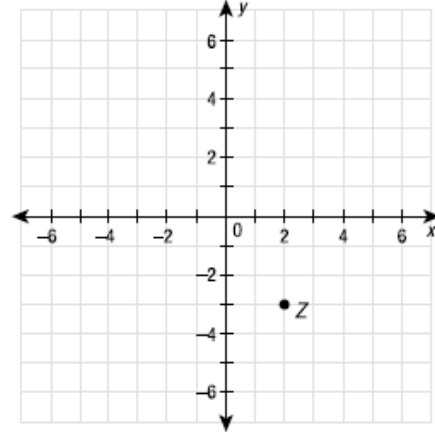
22. Find the distance between points E and F .



Answer: 9

View Video Explanation: [Graphing on a Coordinate Plane](#)

25. Name the quadrant where the point Z is located.



Answer: IV

View Video Explanation: [The Coordinate Plane](#)

23. Identify the missing terms.

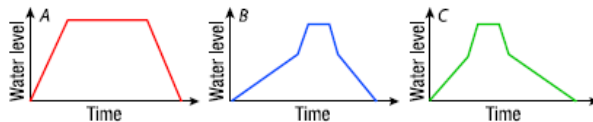
3, 10, 6, 15, 9, 20, 12, [], [], [], ...

Answer: 25, 15, 30

View Video Explanation: [Patterns and Sequences](#)

24. Match a graph with the following situation.

Suppose an empty tub is filled with water from a high-pressure faucet until the level is $\frac{1}{2}$ the tub's height. A person gets into the tub and after a few minutes gets out and releases the drain. The water slowly drains.



Answer: Graph C

View Video Explanation: [Interpreting Graphs and Tables](#)

About Thinkwell Courses

Thinkwell offers the following core courses in our Homeschool Math series:

- 6th Grade Math
- 7th Grade Math
- 8th Grade Math
- Algebra 1
- Geometry
- Algebra 2
- Precalculus
- Trigonometry
- Calculus
- Honors 6th Grade Math
- Honors 7th Grade Math
- Honors 8th Grade Math
- Honors Algebra 1
- Honors Geometry
- Honors Algebra 2
- AP Calculus AB
- AP Calculus BC

What's the difference between the standard Thinkwell courses and the honors courses? In general, the Thinkwell Honors courses will be faster-paced and more rigorous than our standard courses. Our Honors courses will cover more material than the standard courses and the assessments will be more challenging. Unless you need the Honors recognition for your student's transcript, or unless your student is aiming to pursue a science or math-related course of study, we recommend sticking with the standard course sequence.

Typical Sequence of Secondary Math Courses

A typical sequence of secondary math courses completed by a college-bound student is listed below. Most college-bound students will take seven or eight years of math between 6th and 12th grades, beginning with 6th Grade Math and ending with Precalculus or Calculus.

Standard Sequence:

Middle school:

Year 1	Year 2	Year 3
6 th Grade Math	7 th Grade Math	8 th Grade Math

High School:

Year 1	Year 2	Year 3	Year 4
Algebra 1	Geometry	Algebra 2	Precal or Trig

Accelerated Sequence:

Middle school:

Year 1	Year 2	Year 3
7 th Grade Math	8 th Grade Math	Algebra 1

High School:

Year 1	Year 2	Year 3	Year 4
Geometry	Algebra 2	Precal or Trig	Calculus

Where Do You Begin?

If you wondering about where to start your student with the Thinkwell math course sequence, we recommend that you **begin with the end in mind**.

In other words, where do you want your student to be at the end of their course of study in high school? If your student is college-bound, and you want them to take Calculus before they go to college, then work backwards from the ‘accelerated sequence’ above to see where you need to be right now.

Unless your student is planning to pursue a science or math-related degree, Calculus doesn’t necessarily need to be the terminal course for your high school student.

Questions? Please reach out to us at support@thinkwell.com. We’re here and happy to help.