Pre algebra

8th Grade Math

placement test

Welcome!

Thank you for your interest in Thinkwell. We know the curriculum selection process for your homeschool student can be challenging. This placement test is designed to be a tool to assist you as you determine the appropriate level of math for your student.

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

Contents

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Instructions and Overview

This placement test consists of 16 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 a question, tell them to move on to the next one and leave the question unanswered.**

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

- Using the order of operations.
- Writing the prime factorization of numbers.
- Finding percents of numbers.
- Solving one-step equations.
- Identifying the location of points on a coordinate plane.
- Finding the perimeter of rectangles.
- Finding the volume of cylinders.
- Reading line graphs.
- Using the simple interest formula to calculate interest.
- Subtracting and multiplying fractions.
- Writing percents as fractions.
- Writing a ratio.
- Translating algebraic expressions into words.

We recommend you **print the question portion of this document (pages 4-5)** 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 6**. We advise you to share the answer key with your student only after they've completed the test in its entirety.

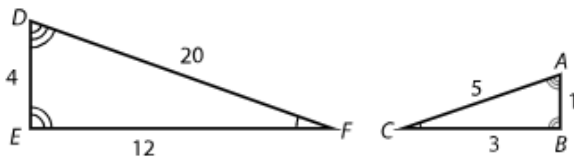Questions? Concerns? Please reach out to us at support@thinkwell.com.

Thinkwell Prealgebra: Placement Test

1. Simplify the expression.
   10 + 3(4)

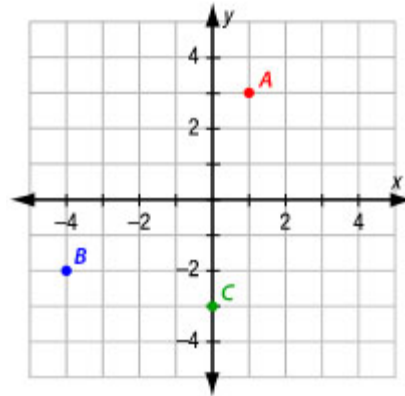2. Write the prime factorization of 30.

3. Solve the equation.
   $x + 5 = 9$

4. Write the ratio of *AB* to *DE*.

5. Approximately what percent of 90 is 40?

6. Choose the phrase or phrases that could represent the expression *m* + 4.
   Select all that apply.
   ▫ a number plus 4
   ▫ a number times 4
   ▫ the sum of a number and 4
   ▫ the quotient of a number and 4

Use the graph to answer #7, 8, and 9.

7. Choose the coordinates of point *A*.
   ▫ (2, 4)
   ▫ (1, 3)
   ▫ (3, 1)
   ▫ (4, 2)

8. Choose the location of point *B*.
   ▫ Quadrant I
   ▫ Quadrant II
   ▫ Quadrant III
   ▫ Quadrant IV
   ▫ on the *x*-axis
   ▫ on the *y*-axis

9. Choose the location of point *C*.
   ▫ Quadrant I
   ▫ Quadrant II
   ▫ Quadrant III
   ▫ Quadrant IV
   ▫ on the *x*-axis
   ▫ on the *y*-axis

Thinkwell Prealgebra: Placement Test

10. Use the formula $V = \pi r^2 h$ to find the volume of the cylinder to the nearest tenth. Use 3.14 for π.

3 in.

5 in.
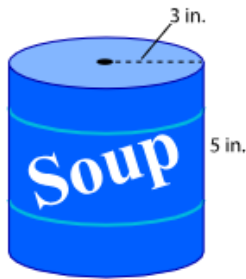
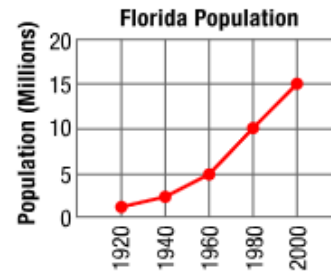11. Find the perimeter of the rectangle.

10 cm

3 cm
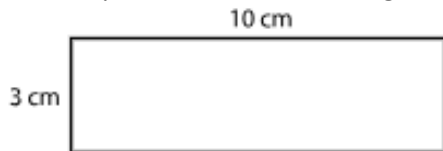
12. The probability of an event is 20%. What is the probability of that event as a fraction in simplest form?

13. Multiply and write the answer in simplest form.
$$\frac{4}{5} \cdot \frac{3}{10}$$

14. Use the graph to estimate the population of Florida in 1970.

15. The amount of simple interest owed is given by the formula $I = Prt$ where P is the principal (the total amount borrowed), r is the interest rate, and t is the length of the loan in years. Thurston borrowed $5,500 for 3 years at an annual simple interest rate of 3% to buy a car. Find the amount of interest he will pay if he pays the entire loan at the end of the third year.

16. Subtract and write the answer in simplest form.
$$\frac{4}{5} - \frac{3}{10}$$

Scoring Guide

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

Your student's 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 support@thinkwell.com if you'd like to discuss your student's course placement in greater detail.

Number of questions correct	Course recommendation
7 or less	7th Grade Math
6 – 11	Prealgebra / 8th Grade Math
12 or more	Honors Prealgebra / 8th Grade Math
15 or more	Algebra 1

Wondering about the difference between Prealgebra and Honors Prealgebra? Read on to learn more.

Both courses will prepare your student for success in Algebra 1 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.

Prealgebra vs Honors Prealgebra

Honors Prealgebra is a faster-pace, more rigorous course than our standard Prealgebra course.

- The content in Honors Prealgebra covers a greater scope and includes more advanced concepts than the standard Prealgebra.

- Each of the 114 daily lessons in Honors Prealgebra includes an average of 12 minutes of video content, while each of the 93 daily lessons in the standard Prealgebra includes an average of 10 minutes of video content.

- The assessments in Honors Prealgebra provide students with questions that are a higher level of difficulty than those in the standard Prealgebra.

answer key

Thinkwell Prealgebra: Placement Test Answer Key

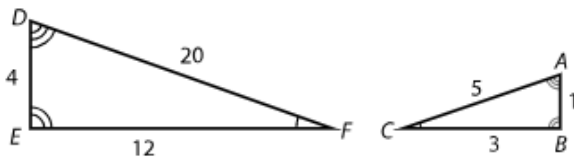1. Simplify the expression.
   10 + 3(4)

   ANSWER: 22

2. Write the prime factorization of 30.

   ANSWER: 2 · 3 · 5

3. Solve the equation.
   $x + 5 = 9$

   ANSWER: $x = 4$

4. Write the ratio of *AB* to *DE*.

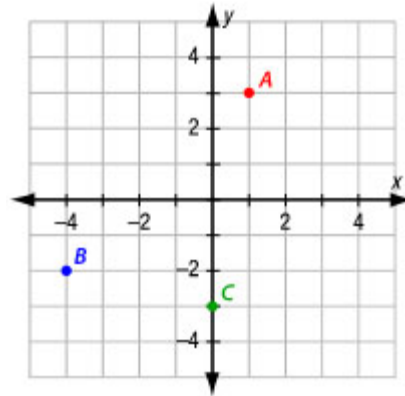   **ANSWER: 1/4**

5. Approximately what percent of 90 is 40?

   ANSWER: 45%

6. Choose the phrase or phrases that could represent the expression $m + 4$.
   Select all that apply.
   ▫ **a number plus 4**
   ▫ a number times 4
   ▫ **the sum of a number and 4**
   ▫ the quotient of a number and 4

Use the graph to answer #7, 8, and 9.

7. Choose the coordinates of point *A*.
   ▫ (2, 4)
   ▫ **(1, 3)**
   ▫ (3, 1)
   ▫ (4, 2)

8. Choose the location of point *B*.
   ▫ Quadrant I
   ▫ Quadrant II
   ▫ **Quadrant III**
   ▫ Quadrant IV
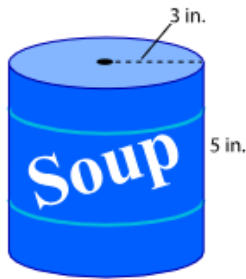   ▫ on the *x*-axis
   ▫ on the *y*-axis

9. Choose the location of point *C*.
   ▫ Quadrant I
   ▫ Quadrant II
   ▫ Quadrant III
   ▫ Quadrant IV
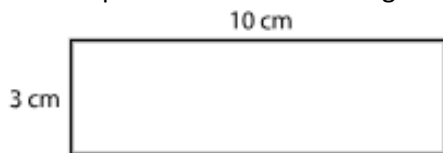   ▫ on the *x*-axis
   ▫ **on the *y*-axis**

Thinkwell Prealgebra: Placement Test Answer Key

10. Use the formula $V = \pi r^2 h$ to find the volume of the cylinder to the nearest tenth. Use 3.14 for π.

ANSWER: 141.3 in³

11. Find the perimeter of the rectangle.

ANSWER: 26 cm

12. The probability of an event is 20%. What is the probability of that event as a fraction in simplest form?
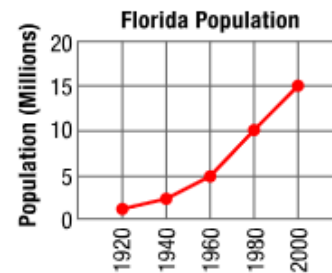
ANSWER: 1/5

13. Multiply and write the answer in simplest form.
$$\frac{4}{5} \cdot \frac{3}{10}$$

ANSWER: 6/25

14. Use the graph to estimate the population of Florida in 1970.

ANSWER: 7.5 million

15. The amount of simple interest owed is given by the formula $I = Prt$ where P is the principal (the total amount borrowed), r is the interest rate, and t is the length of the loan in years. Thurston borrowed $5,500 for 3 years at an annual simple interest rate of 3% to buy a car. Find the amount of interest he will pay if he pays the entire loan at the end of the third year.

ANSWER: $495

16. Subtract and write the answer in simplest form.
$$\frac{4}{5} - \frac{3}{10}$$

ANSWER: 1/2

About Thinkwell Courses

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

Standard Courses	Honors Courses
o 6th Grade Math	o Honors 6th Grade Math
o 7th Grade Math	o Honors 7th Grade Math
o Prealgebra / 8th Grade Math	o Honors Prealgebra / 8th Grade Math
o Algebra 1	o Honors Algebra 1
o Geometry	o Honors Geometry
o Algebra 2	o Honors Algebra 2
o Precalculus	o AP Calculus AB
o Trigonometry	o AP Calculus BC
o Calculus	

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
6th Grade Math	7th Grade Math	Prealgebra

High School:

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

Accelerated Sequence:

    <u>Middle school:</u>

Year 1	**Year 2**	**Year 3**
7th Grade Math	Prealgebra	Algebra 1

    <u>High School:</u>

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. Typically, graduation requirements include a minimum of 3 math courses (Algebra 1, Geometry, Algebra 2).

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