

Math Placement Test Practice Test

Demonstrating proficiency (80% correct) in the concepts listed under each course indicates a readiness for that class. For instance, achieving an 80% or higher in Course 1 (6th grade) means that your student is ready for 6th grade.

Course 1 (6th Grade):

1. Long multiplication

$$\begin{array}{r} 546 \\ \times 13 \\ \hline \end{array}$$

Video Link: [Multiplying 2-digit numbers \(video\) | Khan Academy](#)

2. Long addition

$$\begin{array}{r} 2145 \\ + 5396 \\ \hline \end{array}$$

Video Link: [Adding 3-digit numbers \(video\) | Khan Academy](#)

3. Round a whole number

Round 2145 to the nearest hundred

Video Link: [Rounding whole numbers to nearest hundred \(video\) | Khan Academy](#)

4. Identify place values

In the number 23,564, what number is in the Thousands place?

Video Link: [Place value tables \(video\) | Place value | Khan Academy](#)

5. Long division

$$7614 \div 3$$

Video Link: [Introduction to division with partial quotients \(no remainder\) \(video\) | Khan Academy](#)

6. Perimeter of a rectangle

What is the perimeter of the rectangle?



Video Link: [Comparing areas and perimeters of rectangles \(video\) | Khan Academy](#)

7. Decimal addition

Ethan has 3 quarters, 4 dimes, and 2 nickels.

How much money does he have?

Video Link: [Counting American coins \(video\) | Khan Academy](#)

8. Convert improper fraction to a reduced mixed number

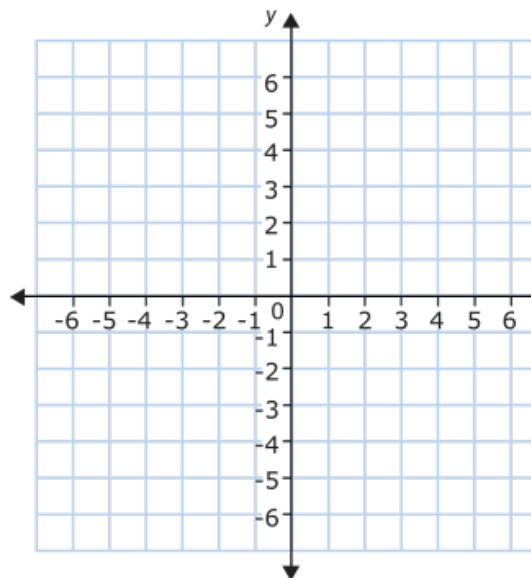
Convert to a mixed number and reduce.

$$\frac{141}{6}$$

Video Link: [Writing improper fractions as mixed numbers \(video\) | Khan Academy](#)

9. Plot a point on a graph

Plot the point $(-2, 4)$



Video Link: [Plotting a point \(ordered pair\) \(video\) | Khan Academy](#)

10. Long Subtraction

$$\begin{array}{r} 2008 \\ - 876 \\ \hline \end{array}$$

Video Link: [Subtracting with regrouping \(borrowing\) \(video\) | Khan Academy](#)

11. Adding fractions

$$\frac{2}{5} + \frac{1}{5}$$

Video Link: [Adding fractions with unlike denominators \(video\) | Khan Academy](#)

12. Rate problem

Hannah can ride 12 miles in 1 hour.
How many miles can she ride in 4 hours?

Video Link: [Rate problems \(video\) | Intro to rates | Khan Academy](#)

Course 2 (7th Grade):

1. Plot a point on a graph
(see #9 above)

Video Link: [Plotting a point \(ordered pair\) \(video\) | Khan Academy](#)

2. Long subtraction
Benjamin Franklin was born in 1706 and died in 1790. How long did he live?

Video Link: [Subtracting with regrouping \(borrowing\) \(video\) | Khan Academy](#)

3. Adding fractions

$$\frac{2}{5} + \frac{3}{10}$$

Video Link: [Adding fractions with like denominators \(video\) | Khan Academy](#)

4. Multiplication of fractions

$$\frac{3}{4} \cdot \frac{2}{7}$$

Video Link: [Intro to multiplying 2 fractions \(video\) | Khan Academy](#)

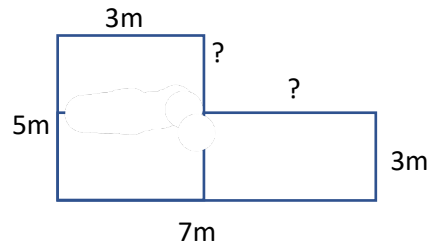
5. Subtracting decimals
 $2.6 - 0.34$

Video Link: [Subtracting decimals: 39.1 - 0.794 \(video\) | Khan Academy](#)

6. Dividing decimals
 $8.73 \div 3$

Video Link: [Dividing a decimal by a whole number example \(video\) | Khan Academy](#)

7. Finding missing lengths of a figure



Video Link: [Finding perimeter when a side length is missing \(video\) | Khan Academy](#)

8. Convert words to decimals

Write thirty-six thousandths using digits (numbers).

Video Link: [Decimals as words \(video\) | Khan Academy](#)

9. Fractions (as a decimal, reduced fraction, and percent)
Josh correctly answered 12 out of 20 questions on his test. What fraction of questions did he answer properly?

Write your answer as a:

Decimal: _____

Reduced fraction: _____

Percent: _____

Video Link: [Simplest form of a fraction \(video\) | Khan Academy](#)

Video Link: [Worked example: Converting a fraction \(7/8\) to a decimal \(video\) | Khan Academy](#)

Video Link: [Percents from fraction models \(video\) | Khan Academy](#)

10. Two white, five blue, and 1 red marbles are in a bag. What is the probability of drawing a white marble?

Video Link: [Simple probability: non-blue marble \(video\) | Khan Academy](#)

11. Prime factorization
Write 36 as a product of prime numbers.

Video Link: [Prime factorization \(video\) | Khan Academy](#)

12. Order of operations

$$15 - 3 \cdot 2 - 4$$

Video Link: [Intro to order of operations \(video\) | Khan Academy](#)

13. Rounding a decimal

Round 6.59 to the nearest whole number.

Video Link: [Rounding decimals on the number line \(video\) | Khan Academy](#)

14. Addition of mixed numbers

$$2\frac{1}{3} + 3\frac{2}{3}$$

Video Link: [Adding mixed numbers with like denominators \(video\) | Khan Academy](#)

15. Finding the average

Find the average of 6, 3.4, and 11.6

Video Link: [Adding three decimals \(video\) | Khan Academy](#)

Video Link: [Averages \(video\) | Khan Academy](#)

Course 3 (8th Grade):

1. Unit price

What is the price per ounce of a 48 ounce box of cereal priced at \$3.24?

Video Link: [What is the better deal? \(video\) | Khan Academy](#)

2. Subtraction of mixed numbers

$$3\frac{1}{4} - 2\frac{1}{3}$$

Video Link: [Subtracting mixed numbers with regrouping \(unlike denominators\) \(video\) | Khan Academy](#)

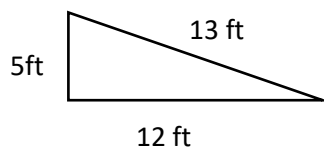
3. Multiplication of mixed numbers

$$\frac{3}{4} \times 3\frac{1}{5}$$

Video Link: [Multiplying mixed numbers \(video\) | Khan Academy](#)

4. Area of a triangle

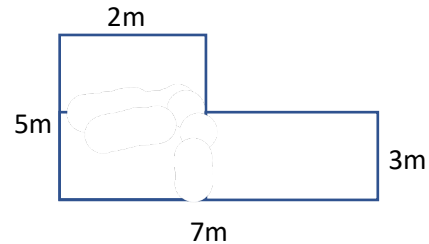
Find the area of the triangle:



Video Link: [Area of a triangle \(video\) | Plane figures | Khan Academy](#)

5. Perimeter of a figure

Find the perimeter:



Video Link: [Finding perimeter when a side length is missing \(video\) | Khan Academy](#)

6. Prime factorization

Write 600 as a product of prime numbers.

Video Link: [Prime factorization \(video\) | Khan Academy](#)

7. Division of decimals

$$7.145 \div 0.03$$

Video Link: [Multi-digit division strategies for decimals \(video\) | Khan Academy](#)

8. Solve for a variable

Solve for x:

$$x - 5 = 17$$

Video Link: [One-step addition & subtraction equations \(video\) | Khan Academy](#)

9. Order of operations
Simplify.

$$2[14 - 2(7 - 4)]$$

Video Link: [Worked example: Order of operations \(PEMDAS\) \(video\) | Khan Academy](#)

10. Write a percent (as a reduced fraction and decimal)

Write 6% as a:

Reduced Fraction: _____

Decimal: _____

Video Link: [Converting percents to decimals & fractions example \(video\) | Khan Academy](#)

11. Solve exponents and radicals
Simplify.
a. 4^3 _____

b. $\sqrt{121}$

Video Link: [Intro to exponents \(video\) | Khan Academy](#)

Video Link: [Intro to square roots \(video\) | Radicals | Khan Academy](#)

12. Cross multiplication
Solve for x.

$$\frac{x}{8} = \frac{3}{12}$$

Video Link: [Worked example: Solving proportions \(video\) | Khan Academy](#)

13. Calculate percentages
Rhianna answered 26 of the 30 questions correctly. What percent of the questions did she answer correctly?

Video Link: [How to find percentage \(tutorial\) | Arithmetic \(video\) | Khan Academy](#)

14. Rate problems
Shaina drove 360 miles and used 16 gallons of gas. Her car averaged how many miles per gallon?

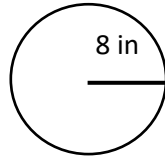
Video Link: [Intro to rates \(video\) | Khan Academy](#)

15. Find percentage of a number
What is 20% of \$18.00?

Video Link: [Percent of a whole number \(video\) | Khan Academy](#)

Algebra 1 (9th Grade):

1. Area and circumference of a circle



Leave answers in terms of π .

Find Area: _____

Circumference: _____

Video Link: [Area of a circle \(video\) | Geometry | Khan Academy](#)

Video Link: [Radius, diameter, circumference & \$\pi\$ \(video\) | Khan Academy](#)

2. Subtraction of a negative number
Simplify.

$$(-5) - (-7)$$

Video Link: [Adding numbers with different signs \(video\) | Khan Academy](#)

3. Distributive property
Simplify: $4(3x - 2)$

Video Link: [Distributive property with variables \(video\) | Khan Academy](#)

4. Powers of fractions
Simplify. $\left(\frac{3}{6}\right)^2$

Video Link: [Powers of fractions \(video\) | Khan Academy](#)

5. Solve for a variable
Solve for x : $-x - 8 = 5$

Video Link: [Intro to two-step equations | Algebra \(video\) | Khan Academy](#)

6. Solve for a variable
Solve for x : $3x + 16 = -11$

Video Link: [Intro to two-step equations | Algebra \(video\) | Khan Academy](#)

7. Multiplication and division of mixed numbers
Simplify: $2\frac{1}{3} \div (1\frac{1}{2} \cdot 3)$

Video Link: [Dividing mixed numbers \(video\) | Khan Academy](#)

8. Rational expressions
Simplify. $\frac{8x^4y^3z}{4xy^2}$

Video Link: [Multiplying & dividing powers \(integer exponents\) \(video\) | Khan Academy](#)

9. Rate problems
The minute hand on a clock turns 5° per minute. In 20 minutes, the hand turns what fraction of a full 360° ?

Video Link: [Proportion word problem: cookies \(video\) | Khan Academy](#)

10. Rate problems
Cody rode the first 6 km in 10 minutes. At that rate, how long will it take Jim to ride 21 km?

Video Link: [Proportion word problem: cookies \(video\) | Khan Academy](#)

11. Find the mean of a data set
13,8,31,38,23,19,24,6

Video Link: [Arithmetic Mean Introduction \(video\) | Khan Academy](#)

12. Simplify polynomials (combine like terms)
Simplify: $4x + 3y - 2x + 2y$

Video Link: [Combining like terms with negative coefficients & distribution \(video\) | Khan Academy](#)

13. Decimals (addition, subtraction, multiplication, and division)
Simplify: $\frac{1.4 - 0.14}{(0.9)(0.7)}$

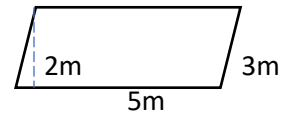
Video Link: [Multiplying decimals example \(video\) | Khan Academy](#)

Video Link: [Dividing by a multi-digit decimal \(video\) | Khan Academy](#)

14. Find the slope of an equation
 $y = 3x + 2$

Video Link: [Slope and y-intercept from equation \(video\) | Khan Academy](#)

15. Area of a parallelogram
Find the area of the parallelogram.



Video Link: [Area of a parallelogram \(video\) | Khan Academy](#)

Geometry (10th)

Algebra 2 (11th grade):

1. Order of operations

Simplify. $(4 + 2)^2 - [4 + 3(11 - 8)]$

Video Link: [Worked example: Order of operations \(PEMDAS\) \(video\) | Khan Academy](#)

2. Scientific notation

Write the product in scientific notation.

$$(5.4 \times 10^2)(3.8 \times 10^4)$$

Video Link: [Multiplying in scientific notation example \(video\) | Khan Academy](#)

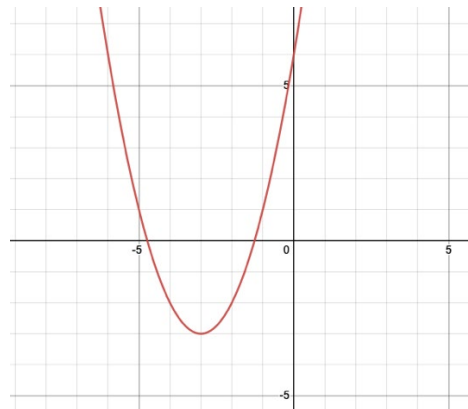
3. Arithmetic sequence

Find the 11th term of the sequence:

2, 8, 14, 20, 26, ...

Video Link: [Arithmetic sequence problem | Algebra \(video\) | Khan Academy](#)

4. Determine minimum, range, and domain



Video Link: [How to find domain and range from a graph \(video\) | Khan Academy](#)

Video Link: [Parabolas intro \(video\) | Intro to parabolas | Khan Academy](#)

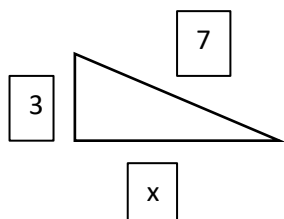
5. Solve the system of equations.

$$\begin{aligned} 4x - 5y &= 15 \\ -2x + y &= -9 \end{aligned}$$

Video Link: [Systems of equations with substitution: potato chips \(video\) | Khan Academy](#)

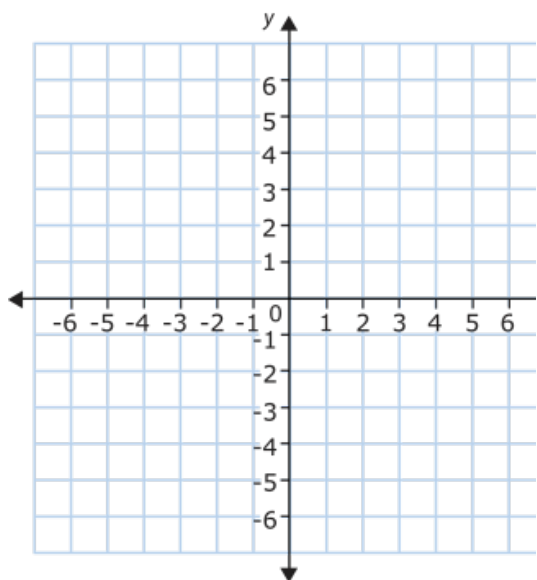
Video Link: [Systems of equations with substitution: \$-3x-4y=-2\$ & \$y=2x-5\$ \(video\) | Khan Academy](#)

6. Missing side of a right triangle



Video Link: [Intro to the Pythagorean theorem \(video\) | Khan Academy](#)

7. Graph a line given an equation
 $y = 3x + 2$



Video Link: [Graph from slope-intercept equation \(video\) | Khan Academy](#)

8. Solving equation containing absolute value
Solve for x.

$$|x + 2| - 3 = 8$$

Video Link: [Solving absolute value equations \(video\) | Khan Academy](#)

9. Factorization of a polynomial
Factor completely.

$$6x^2y^3 - 12x^4y$$

Video Link: [Greatest common factor of monomials \(video\) | Khan Academy](#)

10. Simplify radical expressions

$$\text{Simplify. } \sqrt{144x^3y^8}$$

Video Link: [Simplifying radical expressions: three variables | Algebra \(video\) | Khan Academy](#)

11. Solving for a variable

Solve for x.

$$-3(x + 4) = 7$$

Video Link: [Equations with parentheses \(video\) | Khan Academy](#)

12. Simplifying expressions with exponents

$$\text{Simplify. } (x^3y^{-2})^2(x^{-3}y^4)^3$$

Video Link: [Worked example: Exponent properties \(video\) | Khan Academy](#)

13. Solving quadratic equations

Solve for x.

$$x^2 + 3x = 18$$

Video Link: [Solving quadratics by factoring \(video\) | Khan Academy](#)

14. Simplifying rational expressions

$$\text{Simplify. } \frac{y^3}{3y} + \frac{7y^3}{3y}$$

Video Link: [Intro to adding rational expressions with unlike denominators \(video\) | Khan Academy](#)

15. Multiplying two binomials

Expand and simplify.

$$(x + 5)(x + 9)$$

Video Link: [Multiplying binomials \(video\) | Khan Academy](#)

Beyond Algebra 2 (12th Grade):

1. Solving systems of equations by elimination

$$3x - 4y = -52$$

$$2x - y = -28$$

Video Link: [Systems of equations with elimination \(and manipulation\) \(video\) | Khan Academy](#)

2. Long division with polynomials
Divide $-6 + 4x + 2x^2 + x^3$ by $3 + x$

Video Link: [Dividing polynomials: long division \(video\) | Khan Academy](#)

3. Solving systems of equations (using any preferred method)

When Juan dumped out the big jar of quarters and nickels, he found 89 coins. If there was \$7.25 in the jar, how many of each kind of coin were there?

Video Link: [System of equations word problem: walk & ride \(video\) | Khan Academy](#)

4. Simplifying radicals
Simplify: $\sqrt{3} + \sqrt{27} - 2\sqrt{24}$

Video Link: [Simplifying square-root expressions: no variables \(video\) | Khan Academy](#)

5. Finding equations to parallel lines
Find the slope-intercept form of the line that passes through the point (6,3) and is parallel to the line $3x - 2y = 1$

Video Link: [Writing equations of perpendicular lines | Analytic geometry \(video\) | Khan Academy](#)

6. Fractional exponents
Simplify. $-8^{\frac{2}{3}}$

Video Link: [Evaluating fractional exponents | Algebra \(video\) | Khan Academy](#)

7. Simplifying complex numbers
Simplify. $-5 - \sqrt{-12} - 3i^2 + 5i^5$

Video Link: [Adding complex numbers \(video\) | Khan Academy](#)

8. Rationalizing the denominator
Simplify. $\frac{2}{\sqrt{5}-\sqrt{3}}$

Video Link: [Intro to rationalizing the denominator | Algebra \(video\) | Khan Academy](#)

9. Solving quadratic equations (Quadratic Formula)
Solve for x. $9x^2 - 12x = -1$

Video Link: [Using the quadratic formula | Algebra \(video\) | Khan Academy](#)

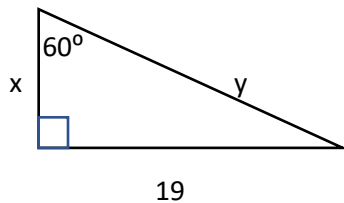
10. Solving radical equations

Solve for x . $\sqrt{x+5} - 4 = 2$

Video Link: [Solving square-root equations: two solutions \(video\) | Khan Academy](#)

11. Finding missing sides of a triangle using Trigonometry

Find the exact values of x and y .



Video Link: [Special right triangles intro \(part 2\) \(video\) | Khan Academy](#)

12. Logarithms

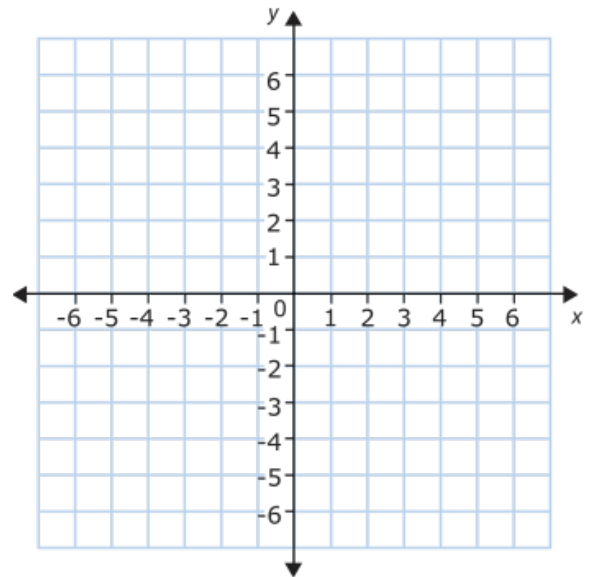
$\log_4 64 =$

Video Link: [Relationship between exponentials & logarithms \(video\) | Khan Academy](#)

13. Graphing linear inequalities

Graph the solution: $y \leq x - 2$

$y > -3x + 1$



Video Link: [Graphing systems of inequalities \(video\) | Khan Academy](#)

14. Multiplying matrices

Find $A \times B$ if

$$A = \begin{bmatrix} 1 & 2 \\ 3 & 5 \end{bmatrix} \quad B = \begin{bmatrix} 2 & 1 \\ -1 & 3 \end{bmatrix}$$

Video Link: [Multiplying matrices \(video\) | Khan Academy](#)