

Math Placement Test Practice Test

Demonstrating proficiency in the concepts listed under each course indicates a readiness for that class.

Course 1 (6th Grade):

1. Long multiplication

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

2. Long addition

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

3. Round a whole number

Round 2145 to the nearest hundred

4. Identify place values

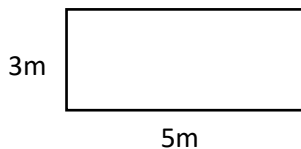
In the number 23,564, what number is in the Thousands place?

5. Long division

$$7614 \div 3$$

6. Perimeter of a rectangle

What is the perimeter of the rectangle?



7. Decimal addition

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

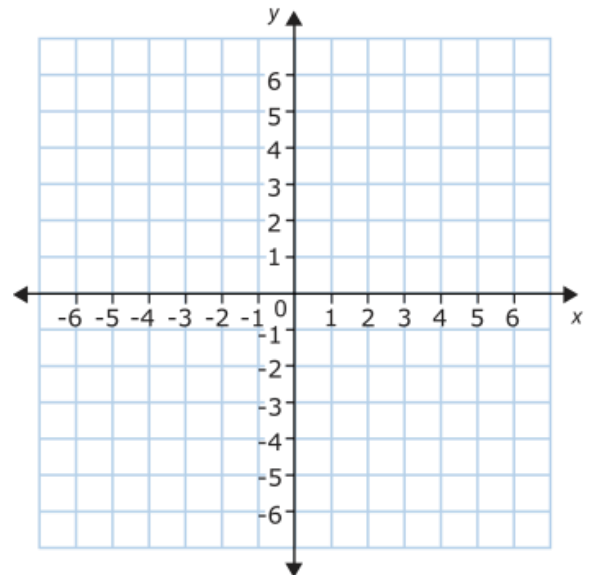
How much money does he have?

8. Convert improper fraction to a reduced mixed number

Convert to a mixed number and reduce.

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

9. Plot a point on a graph
Plot the point (-2,4)



10. Long Subtraction

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

11. Adding fractions

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

12. Rate problem

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

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: _____

Course 2 (7th Grade):

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

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

3. Adding fractions

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

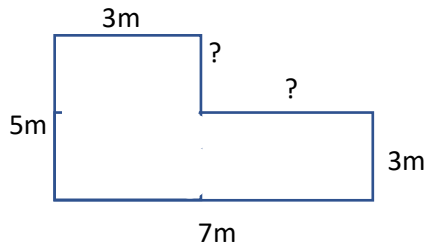
4. Multiplication of fractions

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

5. Subtracting decimals
 $2.6 - 0.34$

6. Dividing decimals
 $8.73 \div 3$

7. Finding missing lengths of a figure



8. Convert words to decimals
Write thirty-six thousandths using digits (numbers).

9. Fractions (as a decimal, reduced fraction, and percent)

10. Probability

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

11. Prime factorization

Write 36 as a product of prime numbers.

12. Order of operations

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

13. Rounding a decimal

Round 6.59 to the nearest whole number.

14. Addition of mixed numbers

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

15. Finding the average

Find the average of 6, 3.4, and 11.6

Course 3 (8th Grade):

1. Unit price

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

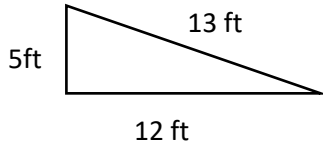
2. Subtraction of mixed numbers

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

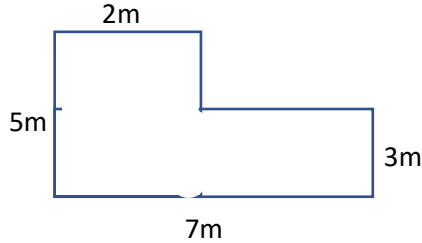
3. Multiplication of mixed numbers

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

4. Area of a triangle
Find the area of the triangle:



5. Perimeter of a figure
Find the perimeter:



6. Prime factorization
Write 600 as a product of prime numbers.
7. Division of decimals
 $7.145 \div 0.03$
8. Solve for a variable
Solve for x :
 $x - 5 = 17$
9. Order of operations
Simplify.
 $2[14 - 2(7 - 4)]$
10. Write a percent (as a reduced fraction and decimal)
Write 6% as a:
Reduced Fraction: _____
Decimal: _____
11. Solve exponents and radicals
Simplify.
a. 4^3
b. $\sqrt{121}$
12. Cross multiplication
Solve for x .

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

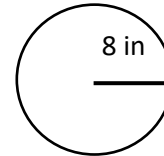
13. Calculate percentages
Rhianna answered 26 of the 30 questions correctly. What percent of the questions did she answer correctly?

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

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

Algebra 1 (9th Grade):

1. Area and circumference of a circle



Leave answers in terms of π .

Find area: _____

Circumference: _____

2. Subtraction of a negative number
Simplify.

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

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

4. Powers of fractions

Simplify. $\left(\frac{3}{6}\right)^2$

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

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

7. Multiplication and division of mixed numbers

Simplify: $2\frac{1}{3} \div (1\frac{1}{2} \cdot 3)$

8. Rational expressions

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

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° ?

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?

11. Find the mean of a data set

13,8,31,38,23,19,24,6

12. Simplify polynomials (combine like terms)

Simplify: $4x + 3y - 2x + 2y$

13. Decimals (addition, subtraction, multiplication, and division)

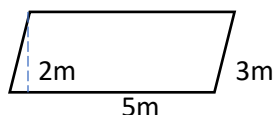
Simplify. $\frac{1.4 - 0.14}{(0.9)(0.7)}$

14. Find the slope of an equation

$y = 3x + 2$

15. Area of a parallelogram

Find the area of the parallelogram.



Geometry (10th), Algebra 2 (11th grade):

1. Order of operations

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

2. Scientific notation

Write the product in scientific notation.

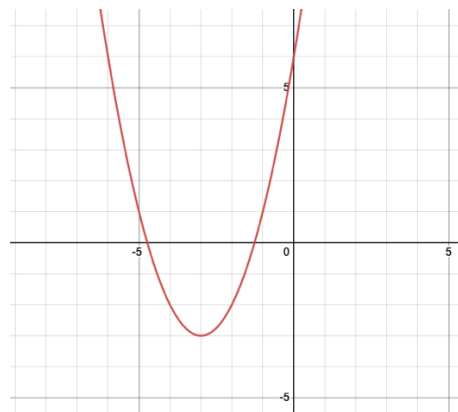
$(5.4 \times 10^2)(3.8 \times 10^4)$

3. Arithmetic sequence

Find the 11th term of the sequence:

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

4. Determine minimum, range, and domain

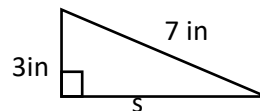


5. Solve the system of equations.

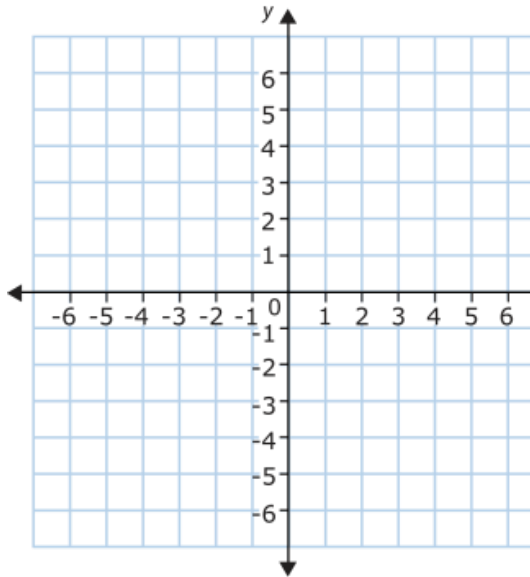
$4x - 5y = 15$

$-2x + y = -9$

6. Missing side of a right triangle



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



8. Solving equation containing absolute value
 Solve for x .

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

9. Factorization of a polynomial
 Factor completely.

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

10. Simplify radical expressions
 Simplify. $\sqrt{144x^3y^8}$

11. Solving for a variable
 Solve for x .

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

12. Simplifying expressions with exponents
 Simplify. $(x^3y^{-2})^2(x^{-3}y^4)^3$

13. Solving quadratic equations
 Solve for x .

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

14. Simplifying rational expressions

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

15. Multiplying two binomials
 Expand and simplify.
 $(x + 5)(x + 9)$

Beyond Algebra 2 (12th Grade):

1. Solving systems of equations by elimination

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

$$2x - y = -28$$

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

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 was there?

4. Simplifying radicals

Simplify: $\sqrt{3} + \sqrt{27} - 2\sqrt{24}$ and leave in simplest radical form.

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 $3x - 2y = 1$

6. Fractional exponents

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

7. Simplifying complex numbers

Simplify. $-5 - \sqrt{-12} - 3i^2 + 5i^5$

8. Rationalizing the denominator

Simplify. $\frac{2}{\sqrt{5}-\sqrt{3}}$

9. Solving quadratic equations (Quadratic Formula)

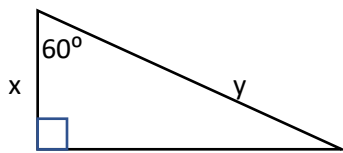
Solve for x . $9x^2 - 12x = -1$

10. Solving radical equations

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

11. Finding missing sides of a triangle using Trigonometry

Find the exact values of x and y .



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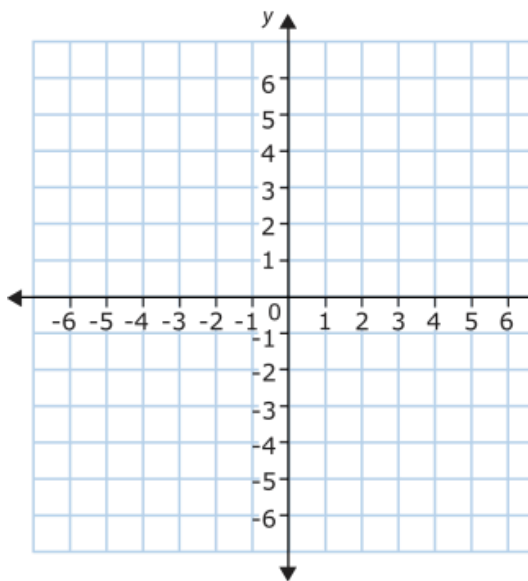
12. Logarithms

$\log_4 64 =$

13. Graphing linear inequalities

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

$y > -3x + 1$



14. Multiplying matrices

Find $A \times B$ if

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