

Algebra 1 Placement Test

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This test can help you see if you are ready to start learning the topics in the Algebra 1 Series.

After you grade the test, you may see that you know some topics but still need to learn or review others. The Answer Key lists which scenarios you should be able to do before starting each book in the Algebra 1 Series. For example, you may be ready to start Book 1, but you may still need to learn more topics before starting Book 2.

You should complete this test without a calculator. You may need extra paper to give you enough space to work through each scenario.

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1. Express each fraction as a percent.

a.  $\frac{1}{2}$

b.  $\frac{7}{10}$

b.  $\frac{1}{5}$

c.  $\frac{3}{4}$

2. Percentages can be written as fractions and also as decimals. Write each of the following percentages in its decimal form and also as a fraction.

a. 25%

b. 3%

c. 150%

3. What is 20% of 50?

4. You buy an item for \$40. Before you pay for it, a 10% sales tax is added to the price. What is the total amount that you pay for the item, including the sales tax?

5. Solve each equation.

a.  $2w - 10 = 12$

b.  $-\frac{2}{3}y = 4$

c.  $3x + 0.5x = 35$

6. Read each statement and convert the statements into equations. Do not solve the equations.

a. Five more than three times the value of  $N$  is twenty.

b. Four less than  $N$  is thirteen.

7. In the equation  $y = 2x + 7$ , what is the value of  $y$  if  $x = -5$ ?

8. Solve each equation.

a.  $7A - 1.2 = -3A - 0.2$

b.  $4\left(x - \frac{3}{2}\right) = 6$

c.  $\frac{1+4B}{3} = 7$

9. Simplify each expression.

a.  $10.5 - 2.45$

b.  $3x + \frac{4}{3}x$

c.  $\frac{-8y + 24}{-4}$

10. If you drive at a speed of 36 miles per hour for 1 hour and 20 minutes, how far will you travel?

11. Simplify the expression  $\frac{200 - 20}{42 - 12}$ .

12. What is the reciprocal of  $-\frac{3}{5}$ ?

13. List all of the positive integers that make the inequality true.

$$7 - x > 3$$

14.  $A$  and  $B$  are positive integers. What are possible values for the product of  $A$  and  $B$  if their sum is 6?

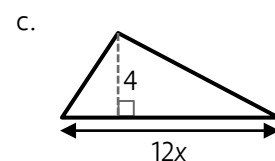
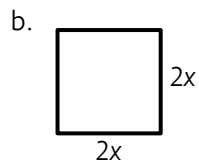
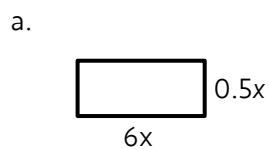
15. List all of the positive factors of 12.

16. Use the Distributive Property to simplify each expression.

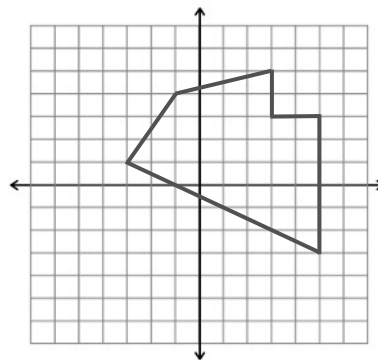
a.  $4(2x - 7)$

b.  $3x(x + 5)$

17. Write an expression that represents the area of each figure.



18. If each square on the grid to the right has a width of 1 cm, what is the area of the figure shown?



19. Write the next 4 numbers in each sequence below.

a. 1, 4, 9, 16, ...

b. 16, 8, 4, 2, ...

20. Simplify each expression as much as you can.

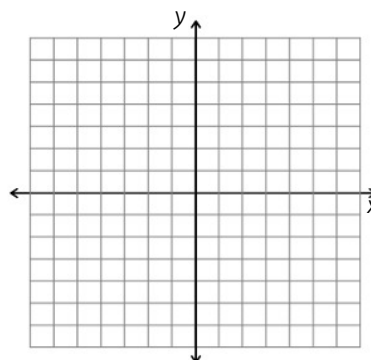
a.  $0.10 - 2.05$

b.  $\sqrt{100}$

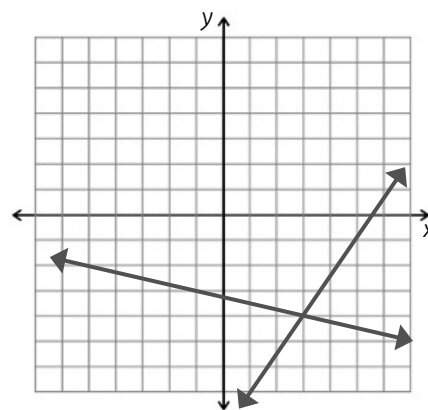
c.  $\left(\frac{3}{5}\right)^2$

21. Plot the ordered pairs shown in the table.

x	y
-2	7
0	3
2	-1
3	-3



22. Locate the point where the two lines intersect. Write the ordered pair that represents the coordinates of that point.



# ANSWER KEY

1.	a. 50%	b. 70%	c. 20%	d. 75%
2.	a. $0.25 \rightarrow \frac{1}{4}$	b. $0.03 \rightarrow \frac{3}{100}$	c. $1.5 \rightarrow \frac{3}{2}$	
3.	10			
4.	\$44			
5.	a. $w=11$	b. $y=-6$	c. $x=10$	
6.	a. $3N+5=20$	b. $N-4=13$		
7.	$y=-3$			
8.	a. $A=\frac{1}{10}$	b. $x=3$	c. $B=5$	
9.	a. 8.05	b. $\frac{15}{4}x$ or $3.75x$	c. $2y-6$	
10.	48 miles			
11.	6			
12.	$-\frac{5}{3}$			
13.	$x=1, x=2, x=3$			
14.	5, 8, 9			
15.	1, 2, 3, 4, 6, 12			

16.	a. $8x-28$	b. $3x^2+15x$
17.	a. $3x^2$	b. $4x^2$ c. $24x$
18.	$37 \text{ cm}^2$	
19.	a. 25, 36, 49, 64	b. $1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}$
20.	a. -1.95	b. 10 c. $\frac{9}{25}$
21.		
22.	$(3, -4)$	

The list below shows which scenarios you should know how to do before starting each book.

Book 1: #1, 2, 3, 4, 5, 6, 10

Book 2: #5, 6, 7, 8, 11, 13, 21, 22

Book 3: #7, 12, 16, 17, 19, 20

Book 4: #9, 16, 17, 18

Book 5: #14, 15, 16, 17

Book 6: #13, 16, 17, 18, 22

Book 7: #16, 19, 20