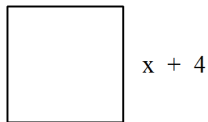


alg2T1f12

1. The formula for the area,  $A$ , of a square with sides of length  $n$  is  $A = n^2$ . If the length of a side of a given square is  $x + 4$ , write an expression to represent the area of the square.



- a.  $x^2 + 16$   
b.  $x + 4^2$   
c.  $(x + 4)^2$   
d. More than one of the above
2. If the length of a side of a given square is  $x - 5$ , write an expression to represent the area of the square.
- a.  $x^2 - 25$   
b.  $x^2 + 25$   
c.  $(x - 5)^2$   
d. More than one of the above

*Write an algebraic expression to represent the following verbal expression.*

3. the product of the square of a number and  $-7$

*Solve the Absolute Value Equation*

4.  $|m - 8| = 30$
5. Solve for  $x$ :  $5|x + 10| = 25$

6. Solve for  $x$ :  $|x + 38| + 22 = 13$

7.  $2|x - 3| - 13 = 3$

*Properties of Numbers*

8. Which property allows us to change this:  $\left(\frac{2}{5}\right)(x - 69)\left(\frac{5}{2}\right)$  to this:  $\left(\frac{2}{5}\right)\left(\frac{5}{2}\right)(x - 69)$  ?

9. Choose the property that allows us to change this:  $\left[\frac{5}{9}(x - 32)\right]\frac{9}{5}$  to this:  $\frac{5}{9}(x - 32)\frac{9}{5}$

*Solving Equations*

10. Solve for  $y$ :  $x = \frac{1}{4}(y - 3)$

11. Solve for  $y$ :  $5x - 2y = 12$

**Algebra 2 Test 1 Form {A} Do NOT write on this test. Show all work and answers on separate sheet.**

*Simplify the Expression*

12.  $4(y + 5) - 8(y + 8)$

13.  $22x + 34y - 94x + 52y$

*Evaluate the expression*

14. Evaluate  $a^2 - b^2$  when  $a = 8$  and  $b = -6$

15. Evaluate  $a^3 - b^3$  when  $a = 4$  and  $b = -7$

16. Evaluate:  $\frac{13}{\frac{2}{3}}$

Provide answer as a decimal number.

17. Evaluate  $\frac{a-d}{bc}$  when  $a = 13$ ,  $b = 0.9$ ,  $c = \frac{1}{9}$ ,  $d = -1$

Provide answer as a number.

18. Evaluate  $b^2 - 4ac + d$  when  $a = 1$ ,  $b = -6$ ,  $c = 10$ ,  $d = 43$

19. Evaluate  $b^2 - 4ac + d$  when  $a = 2$ ,  $b = -5$ ,  $c = -3$ ,  $d = 26$

*Solving Equations with Fractions*

20. Which is equivalent to this equation?:

$$x + \frac{7}{15} = \frac{1}{3}x - \frac{1}{5}$$

21. Which is equivalent to this equation?:

$$\frac{1}{10}x + \frac{7}{30} = \frac{1}{6}x - \frac{1}{15}$$

*Calculate the value for y when given the value for x*

22.  $y = 3x^2 - 2x - 5$  and  $x = -1$

23. If  $y = -x^2 + 8x - 3$  and  $x = 5$

24. If  $y = -2x^2 - 3x - 5$  and  $x = -1$

*Word Problems*

25. Plumber X charges a flat rate of \$40 for a visit. Plumber Y charges no flat rate but charges \$52 per hour. The total amount they both earned is \$772. If Plumber Y works for 11 hours, how many visits did Plumber X make? Provide the answer as a number.

**Algebra 2 Test 1 Form {A} Do NOT write on this test. Show all work and answers on separate sheet.**

26. The flow rate of IV fluids is calculated using the formula  $F = \frac{V \times d}{t}$ , where  $V$  is the volume of the solution in milliliters,  $d$  is the drip factor in drips per minute, and  $t$  is the time in minutes. Determine the flow rate of 1494 milliliters of IV fluid for a patient for 63 minutes if the drip factor is 22 milliliters per minute. Provide the answer as a number and round to one decimal place.

27. Provide one solution for the compound inequality:  
 $-157 \leq 5x - 2 \leq 83$   
Enter your answer as a number. If you do not understand how to enter the answer, then you do not understand the question that is being asked.

*Solve the given inequality and graph the solution set on a number line.*

28.  $4m - 2 < 8$  or  $6m + 2 \geq 4$

29.  $|m| \geq 2$

30.  $|p - 1| < 6$

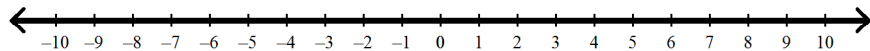
31.  $8.1 - 2p \leq 0$

## alg2T1f12

## Answer Section

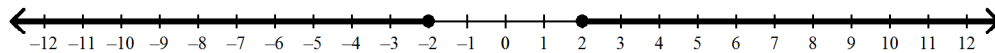
1. C  
Substitute the value of  $s$  in the equation to find the required answer.
2. C  
Substitute the value of  $s$  in the equation to find the required answer.
3.  $-7x^2$   
Read the entire expression carefully and interpret it algebraically.
4.  $\{38, -22\}$   
For any real numbers  $a$  and  $b$ , where  $b \geq 0$ , if  $|a| = b$ , then  $a = b$ , or  $-a = b$ .
5.  $x = -5, -15$
6. None of the above
7.  $x = 11, -5$
8. Commutative
9. Associative
10.  $y = 4x + 3$
11.  $y = \frac{5}{2}x - 6$
12.  $-4y - 44$
13.  $-72x + 86y$   
Use the properties of real numbers to simplify the given expression.
14. 28
15. 407
16. 19.5
17. 140
18. 39
19. 75
20.  $15x + 7 = 5x - 3$   
Simplified through fraction busting:  $3x + 7 = 5x - 2$
21.  $3x + 7 = 5x - 2$   
Simplified through fraction busting:  $3x + 7 = 5x - 2$
22. 0
23. 12
24.  $-4$
25. 5 visits  
  
First write the equation for the situation, and then solve it to find the required answer.
26. 521.7  
Substitute the known values in the formula to find the value of the remaining variable.

27.  $-31 \leq x \leq 17$



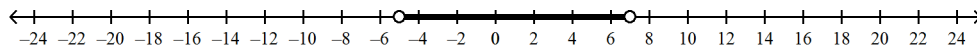
28.

Solve the given inequality and then plot the graph.



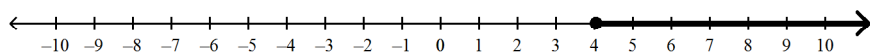
29.

Solve the given inequality and plot the solution on a number line.



30.

Solve the inequality and plot the solution on a number line.



31.

Solve the inequality and then graph the solution.