



# CHANNEL VIEW

An Expeditionary Learning School



Entering Algebra 2

Dear Parents:

In our effort to academically prepare your child for the coming school year, the math teachers at Channel View School for Research have prepared a math packet for the summer vacation to help your child reinforce and maintain his/her math skills.

Students are expected to complete all assigned work in the packet. Parents are asked to certify that their child completed the assignment. The math packet will be collected, scored, and reviewed in class. The completed math packet is due to your child's math teacher on the first day of school.

Working together we can insure maximum success for your child. Your cooperation in this matter is appreciated.

We wish you a happy and healthy summer.

Sincerely,

Mrs. Harper-Richardson  
Principal

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I certify that my child has completed the required 2018 Summer Vacation Math Assignment.

Student's Name \_\_\_\_\_ Entering Grade \_\_\_\_\_

Parent's Signature \_\_\_\_\_ Date \_\_\_\_\_

Name: \_\_\_\_\_

## Entering Algebra 2

Directions: Circle the number of the correct answer choice.

1. Describe the number and type of roots for the equation:  $2x^2 + 7 = 12x + 4$ .

1. 2 real, rational roots      3. 1 real, rational root  
2. 2 real, irrational roots    4. 2 imaginary roots

2. Find the solution(s) to the equation

$$\frac{x-4}{x-3} = \frac{9}{x-3} - \frac{1}{4}$$

1.  $x = 55$       3.  $x = 3$   
2.  $x = 11$       4.  $x = 4$

3. Find the solution(s) to the equation

$$\frac{3}{x^2 + 5x + 6} + \frac{x-1}{x+2} = \frac{7}{x+3}$$

1. -7 and 2      3. -2 and 7  
2. -2              4. 7

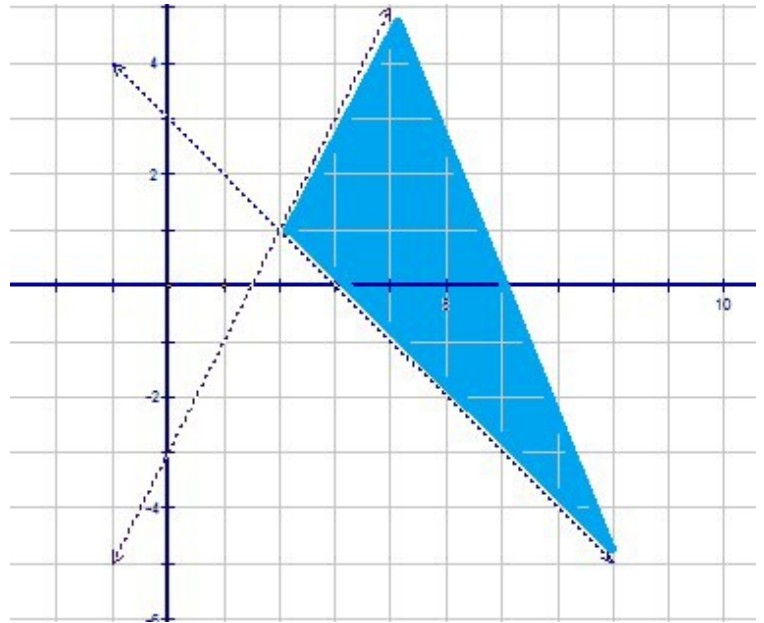
4. Which of the following systems of equations has many solutions?

1.  $2x + 3y = 6$   
 $y = 2x + 2$   
2.  $8x - 4y = 12$   
 $y = 2x - 3$   
3.  $y = 4x + 3$   
 $y = 4x - 3$   
4.  $2x + y = 4$   
 $-2x - y = 4$

5. Which point is **not** a solution to the system of inequalities?

- $y > x - 5$   
 $y \leq -x + 3$   
1. (4, -1)      3. (0, 0)  
2. (3, 0)        4. (2, -2)

6. Which system of inequalities is shown below in the graph?



1.  $y < 2x - 3$   
 $y > -x + 3$   
2.  $y > 2x - 3$   
 $y < -x + 3$   
3.  $y < 2x - 3$   
 $y \geq -x + 3$   
4.  $y \leq 2x - 3$   
 $y \geq -x + 3$

7. The solution to a system of linear inequalities is defined by:

$$y > 2x - 3$$

$$y < -x - 6$$

In which quadrant(s) of the coordinate plane is the solution located?

1. I, II, III, IV      3. II and III, only  
2. I and IV, only    4. I, III, and IV, only

8. For which quadratic equation(s) is the vertex a **maximum point**?

I.  $y = -2x + 5 + 3x^2$

II.  $y = 7 + 4x - x^2$

III.  $y + 3x^2 = -7x + 2x^2 + 10$

IV.  $y = 17 + 0.05x^2 - 10x$

1. I, only      3. II and III, only  
2. II, only    4. I and IV, only

9. For what values of  $x$  is the function  $f(x) = x^2 - 4x - 5$  increasing?

1.  $-1 < x < 5$   
2.  $x > 2$   
3.  $x < -1$  or  $x > 5$   
4.  $x < 2$

10. What is the slope of the graph of the line  $6x - 2y = 15$ ?

1.  $-7.5$     3.  $2.5$   
2.  $-3$       4.  $3$

11. What is the perimeter of the isosceles trapezoid that has vertices of  $A(-3, 5)$ ,  $B(3, 5)$ ,  $C(5, -3)$ , and  $D(-5, -3)$ ?

1. 16 units  
2.  $16 + \sqrt{34}$  units  
3.  $16 + \sqrt{17}$  units  
4.  $20\sqrt{17}$  units

12. If  $\frac{7}{(x+4)} = \frac{k}{2x(x+4)}$ , what is the value of  $k$ ?

1. 14    3.  $7x$   
2. 2     4.  $14x$

13. What value of  $c$  makes  $36x^2 + 84x + c$  a perfect square trinomial?

1. 49    3. 9  
2. 7     4. 4

14. Which expression is the greatest common factor (GCF) of the terms of the trinomial  $12x^7y^9 + 6x^4y^7 - 10x^3y^5$ ?

1.  $6x^7y^9$   
2.  $2x^3y^5$   
3.  $6x^3y^5$   
4.  $2x^{14}y^{21}$

15. Which expression represents the area of the rectangle?



1.  $5x - 4$   
2.  $10x - 8$   
3.  $4x^2 - 21$   
4.  $4x^2 + 5x - 21$

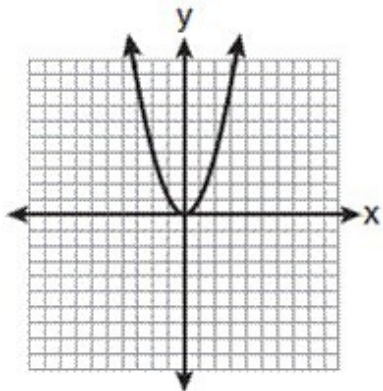
16. What is the simplified form of  $\frac{14x^5y^9}{2xy^3}$ ?

1.  $12x^5y^9$   
2.  $7x^6y^{12}$   
3.  $7x^4y^6$   
4.  $7x^5y^3$

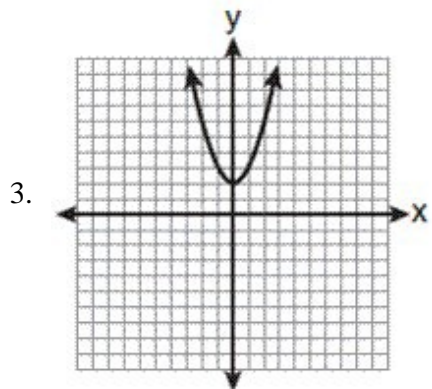
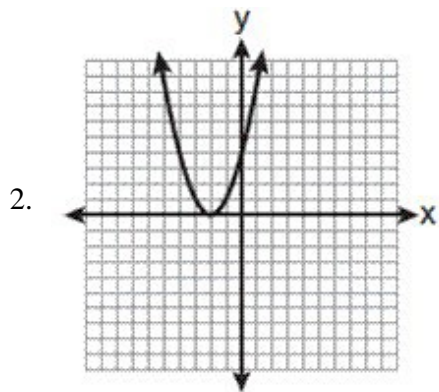
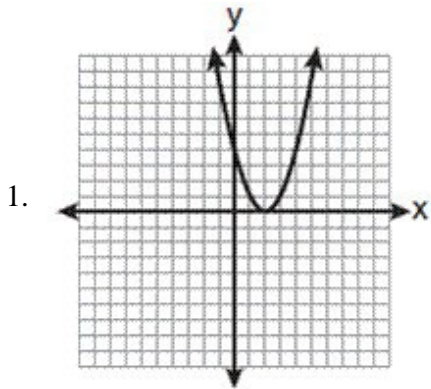
17. Solve the equation  $8x^3 + 4x^2 - 18x - 9 = 0$  algebraically for all values of  $x$ .

1.  $\frac{3}{2}$  and  $\frac{1}{2}$   
2.  $\frac{3}{2}$  and  $-\frac{1}{2}$   
3.  $\pm\frac{3}{2}$  and  $-\frac{1}{2}$   
4.  $\pm\frac{3}{2}$  and  $\frac{1}{2}$

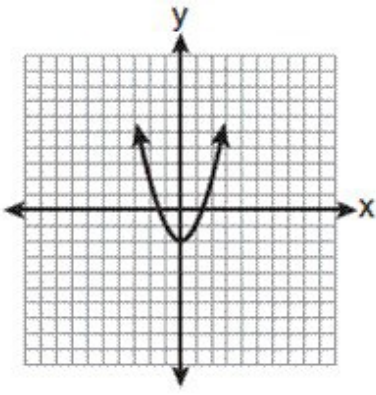
18. The graph below shows the function  $f(x)$ .



Which graph represents the function  $f(x + 2)$ ?



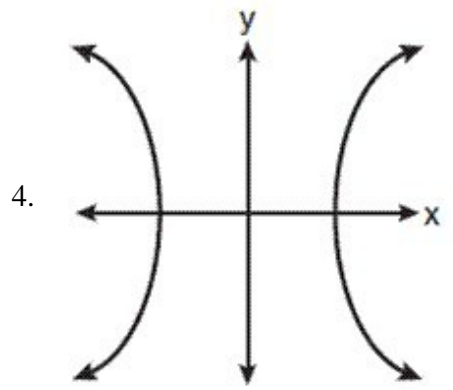
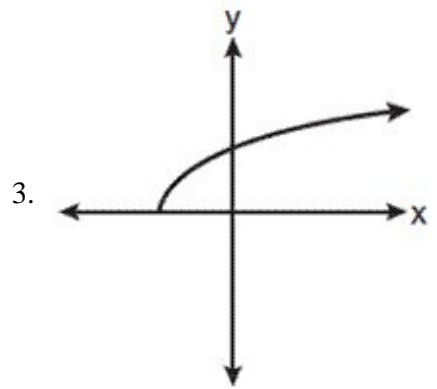
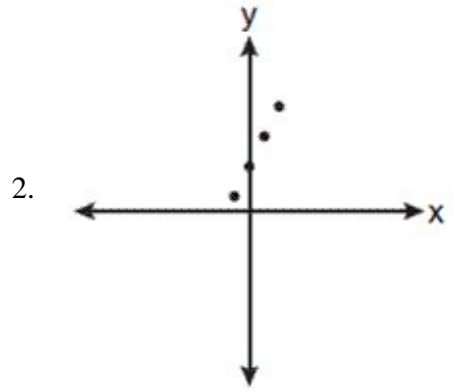
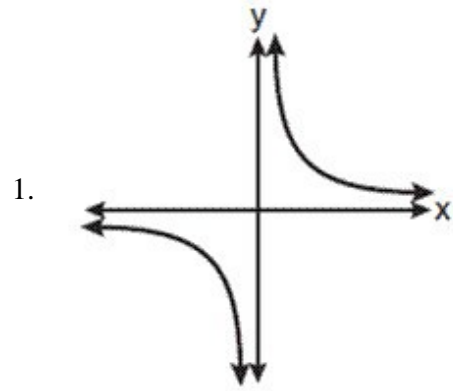
4.



19. Factored completely, the expression  $6x^3 - x^3 - x^2$  is equivalent to

1.  $x(x + 3)(x - 2)$
2.  $x(x - 3)(x + 2)$
3.  $-x(x - 3)(x + 2)$
4.  $-x(x + 3)(x - 2)$

20. Which graph does *not* represent a function?



21. Put the following quadratic into vertex form by completing the square:  $y = 6x^2 - 2x - 6$ .

1.  $y = 6\left(x - \frac{1}{6}\right)^2 - \frac{37}{6}$

2.  $y = 6\left(x - \frac{1}{6}\right)^2 - \frac{31}{6}$

3.  $y = 6\left(x + \frac{1}{6}\right)^2 + \frac{37}{6}$

4.  $y = 6\left(x + \frac{1}{6}\right)^2 + \frac{31}{6}$

22. Find the roots of the equation:  $y = (x + 5)^2 + 4$

1.  $x = 5 \pm \sqrt{-4}$

2.  $x = -5 \pm 2i$

3.  $x = 5 \pm 2i\sqrt{2}$

4.  $x = -5 \pm 2i\sqrt{2}$

23. Which set of ordered pairs does *not* represent a function?

1.  $\{(3,-2), (-2,3), (4,-1), (-1,4)\}$

2.  $\{(3,-2), (3,-4), (4,-1), (4,-3)\}$

3.  $\{(3,-2), (4,-3), (5,-4), (6,-5)\}$

4.  $\{(3,-2), (5,-2), (4,-2), (-1,-2)\}$

24. Which equation does *not* represent a function?

1.  $x = \pi$

2.  $y = 4$

3.  $y = |x|$

4.  $y = x^2 + 5x$

25. The temperature generated by an electrical circuit is represented by  $t = f(m) = 0.3m^2$ , where  $m$  is the number of moving parts. The resistance of the same circuit is represented by  $r = g(t) = 150 + 5t$ , where  $t$  is the temperature. What is the resistance in a circuit that has four moving parts?

1. 51      3. 174

2. 156      4. 8,670