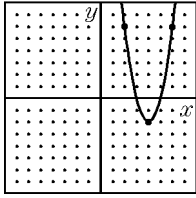


## Features of Quadratics (Unit 9)

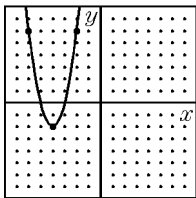
Name: \_\_\_\_\_

Date: \_\_\_\_\_

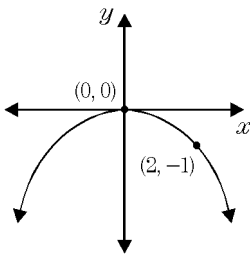
1. What is the equation of the graph below?



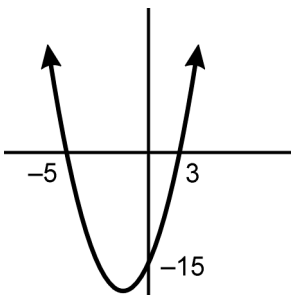
2. What is the equation of the graph below?



3. What is the equation of the given parabola?

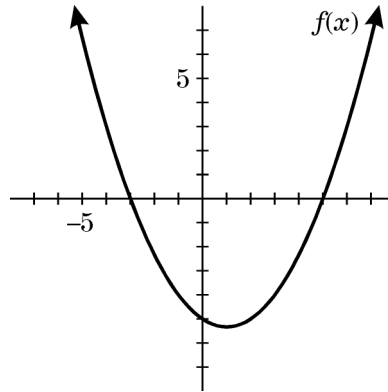


4. The graph of  $f(x)$  is shown here:



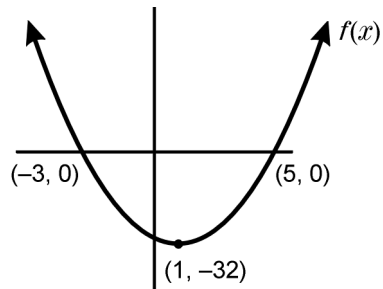
If  $f(x) = ax^2 + bx + c$ , what is  $f(x)$  in factored form?

5. The graph of  $f(x)$  is shown here:

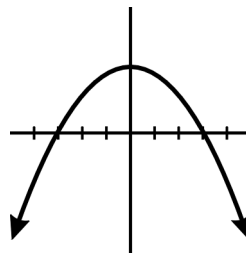


If  $f(x) = ax^2 + bx + c$ , what is  $f(x)$  in factored form?

6. Given the graph of  $f(x)$ , find the value of  $a$  if  $f(x) = ax^2 + bx + c$ .



7. Given the graph of  $f(x)$ , find the value of  $b$  if  $f(x) = ax^2 + bx + c$ .



8. Let  $f(x) = ax^2 + bx + c$ . Use the table to find an equation for  $f(x)$ . The value for  $b = ?$

$x$	$f(x)$
-3	0
0	-12
4	0

9. Let  $f(x) = ax^2 + bx + c$ . Use the table to find an equation for  $f(x)$ . The value for  $b = ?$

$x$	$f(x)$
-3	0
0	-12
4	0

10. Determine the vertex of the parabola  $x = -2y^2 + 12y - 10$ .
11. Determine the vertex of the parabola  $y = 5 - 6x - 3x^2$ .
12. If  $y = x^2 + 14x - 5$  were put in vertex form  $y = a(x - h)^2 + k$ , then  $k = ?$
13. If  $y = -2x^2 + 8x - 5$  were put in vertex form  $y = a(x - h)^2 + k$ , then  $k = ?$
14. Given  $4^3 \times 2^{-1} = 2^x$ , find  $x$ .
15. Given  $8^3 \times 2^{-3} = 2^x$ , find  $x$ .
16. If  $2^{3x-1} = (\frac{1}{8})^2$ , then what is the value of  $x$ ?

17. The values of  $y = 10^x$  increase rapidly as large values of  $x$  become larger. Calculate the value of  $y$  when  $x = 5$  and  $x = 5.1$ . What is the increase in  $y$  for this small change in  $x$ ?

18. The values of  $y = 8^x$  increase rapidly as large values of  $x$  become larger. Calculate the value of  $y$  when  $x = 6$  and  $x = 6.1$ . To the nearest hundredth, what is the increase in  $y$  for this small change in  $x$ ?

19. Aaron deposits \$20,000 in a bank account that earns 5.9% compounded quarterly. The amount of money,  $A$ , in the account can be determined by the formula

$$A = 20,000 \left(1 + \frac{0.059}{4}\right)^{4t}$$

where  $t$  is the number of years that the money is in the bank. How much money does Aaron have after 10 years?

20. The number of bacteria in a culture is given by the formula

$$B(t) = 2,000,000e^{-0.025t}$$

where  $B$  is the number of bacteria  $t$  days later. After how many days will more than half of the bacteria be eliminated?

Features of Quadratics (Unit 9)      10/1/2017

1.  
Answer:  
Objective:      F.IF.8A
2.  
Answer:  
Objective:      F.IF.8A
3.  
Answer:  
Objective:      F.IF.8A
4.  
Answer:  
Objective:      F.IF.8A
5.  
Answer:  
Objective:      F.IF.8A
6.  
Answer:  
Objective:      F.IF.8A
7.  
Answer:  
Objective:      F.IF.8A
8.  
Answer:  
Objective:      F.IF.8A
9.  
Answer:  
Objective:      F.IF.8A
10.  
Answer:  
Objective:      F.IF.8A
11.  
Answer:  
Objective:      F.IF.8A
12.  
Answer:  
Objective:      F.IF.8A
13.  
Answer:  
Objective:      F.IF.8A
14.  
Answer:  
Objective:      F.IF.8B

15.  
Answer:  
Objective:      F.IF.8B
16.  
Answer:  
Objective:      F.IF.8B
17.  
Answer:  
Objective:      F.IF.8B
18.  
Answer:  
Objective:      F.IF.8B
19.  
Answer:  
Objective:      F.IF.8B
20.  
Answer:  
Objective:      F.IF.8B