

Fill in the missing parts!

1. VERBALLY

7 gallon tank leaks gas 1 gallon every 3 hours.

$-\frac{1g}{3h}$

ALGEBRAICALLY

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

NUMERICALLY

time hours	gallons gas
0	7
2	$\frac{14}{3}$
6	5
3	6

GRAPHICALLY

2. VERBALLY

Joe owes 4 pennies to Britt. Joe gives 1 penny to Britt every 3 days

ALGEBRAICALLY

$p(t) = \frac{1}{3}t - 4$

NUMERICALLY

days t	pennies owed p(t)
0	-4
7	$-\frac{5}{3}$
24	4
-90	-34

GRAPHICALLY

3. VERBALLY

If Nicky doesn't study for Precalc, he will get a 30% on his test. He will increase his grade by 5% for every hour he studies.

ALGEBRAICALLY

① $m = \frac{\Delta y}{\Delta x} = \frac{(50) - (40)}{(4) - (2)} = \frac{10}{2} = 5$

② $y - y_1 = m(x - x_1)$
 $y - (40) = 5(x - (2))$
 $y - 40 = 5x - 10$
 $y = 5x + 30$

NUMERICALLY

Time (hours)	Grade (%)
2	40
4	50
6	60
8	70

GRAPHICALLY

4. VERBALLY

A pool is empty. Two gallons of water are added every minute.

ALGEBRAICALLY

$y = 2x$

NUMERICALLY

Time in MINUTES	WATER IN GALLONS
0	0
3	6
6	12
9	18

GRAPHICALLY

If $f(x) = 4 - 3x$ and $g(x) = 2x^2 - 3x + 1$ then find...

5. $f(4) = 4 - 3(4)$
 $= 4 - 12$
 $f(4) = -8$

6. $g(-5) = 2(-5)^2 - 3(-5) + 1$
 $= 2(25) + 15 + 1$
 $= 50 + 16$
 $g(-5) = 66$

7. $g(a) = 2(a)^2 - 3(a) + 1$
 $g(a) = 2a^2 - 3a + 1$

8. $f(m+1) = 4 - 3(m+1)$
 $= 4 - 3m - 3$
 $f(m+1) = -3m + 1$

If $f(x) = 4 - 3x$ and $g(x) = 2x^2 - 3x + 1$ then find...

9. $g(x+2) =$
 $2(x+2)^2 - 3(x+2) + 1$
 $= 2(x^2 + 4x + 4) - 3x - 6 + 1$
 $= 2x^2 + 8x + 8 - 3x - 5$
 $g(x+2) = 2x^2 + 5x + 3$

10. $f(x) = 10$
 $4 - 3x = 10$
 $-3x = 6$
 $x = -2$

11. $f(x) = 21$
 $4 - 3x = 21$
 $-3x = 17$
 $x = \frac{17}{-3}$

12. $f(0) + g(1) = 4 + 0$
 $f(0) + g(1) = 4$
 ① $f(0) = 4 - 3(0)$
 $= 4 - 0$
 $f(0) = 4$
 ② $g(1) = 2(1)^2 - 3(1) + 1$
 $= 2(1) - 3 + 1$
 $= 2 - 2$
 $g(1) = 0$

If $h(x) = \frac{2x}{x+1}$ and $k(x) = \sqrt{2x-5}$ then find...

13. $h(4) = \frac{2(4)}{(4)+1}$
 $h(4) = \frac{8}{5}$

14. $k(5) = \sqrt{2(5)-5}$
 $= \sqrt{10-5}$
 $k(5) = \sqrt{5}$

15. $h(m) = \frac{2(m)}{(m)+1}$
 $h(m) = \frac{2m}{m+1}$

16. $k(m+1) =$
 $\sqrt{2(m+1)-5}$
 $= \sqrt{2m+2-5}$
 $k(m+1) = \sqrt{2m-3}$

17. $h(x+2) = \frac{2(x+2)}{(x+2)+1}$
 $h(x+2) = \frac{2x+4}{x+3}$

18. $k(x) = 10$
 $\sqrt{2x-5} = 10$
 $2x-5 = 100$
 $2x = 105$
 $x = \frac{105}{2}$

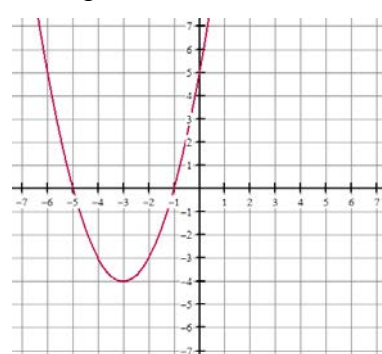
19. $h(x) = 4$
 $\frac{2x}{x+1} = 4$
 $2x = 4(x+1)$
 $2x = 4x+4$
 $-2x = 4$
 $x = -2$

20. $h(0) + k(15) = 0 + 5$
 $h(0) + k(15) = 5$
 ① $h(0) = \frac{2(0)}{(0)+1}$
 $= \frac{0}{1}$
 $= 0$
 ② $k(15) = \sqrt{2(15)-5}$
 $= \sqrt{30-5}$
 $= \sqrt{25}$
 $= 5$

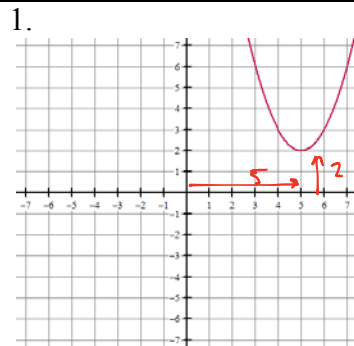
Review Skill

Write the equation of the quadratic function in vertex form, $y = a(x-h)^2 + k$. See example for a refresher!

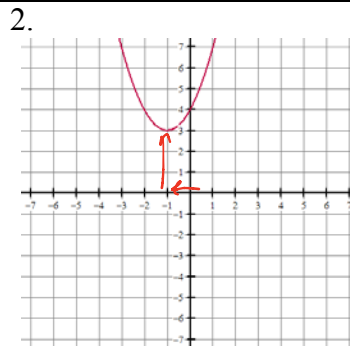
Example:



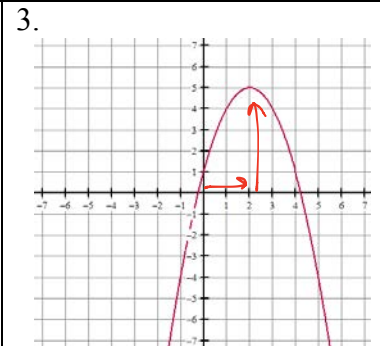
$y = (x+3)^2 - 4$



$y = (x-5)^2 + 2$



$y = (x+1)^2 + 3$



$y = -(x-2)^2 + 5$