Exercises

$f(x) = 2x + 1$
$g(x) = x^2$

1. Find $f(g(x))$.

2. Find $g(f(x))$

3. What's the function generated by shifting $f(x)$ up by one?

4. What's the function generated by shifting $f(x)$ down by 10 ?

5. What's the slope of $f(x)$?

6. Find the line going through the points $(1, 2)$ and $(2, 5)$.

7. Find the line going through the points $(0, 10)$, and $(3, 8)$.

8. Find all solutions to $f(x) = 2x + 20$.

9. Find all solutions to $f(x) = 2x + 1$.

10. Graph $g(x - 2)$.

Solutions

1. $2x^2 + 1$

2. $(2x + 1)^2 = 4x^2 + 4x + 1$.

3. The function is $f(x) + 1 = 2x + 2$.

4. The function is $f(x) - 10 = 2x - 9$.

5. The slope is 2.

6. Slope is 3 and y-intercept is -1. Therefore, the line is $y = 3x - 1$.

7. Slope is $\frac{-2}{3}$ and y-intercept is 10. Therefore, the line is $y = \frac{-2}{3}x + 10$.

8. No solutions. The lines are parallel.

9. Any real number.

10. The graph looks like that of x^2 but shifted 2 to the right (not left).