**Station 2: f(x) = g(x) introduction**

What is f(x) = g(x)? Well, each of these symbols represents an equation. In order to solve, we set the two equations that we are given equal to each other, and solve.

* Think about it like this: f(x) and g(x) are each companies. Each company sells the same product, which is represented by x. For this example we will say they sell shoe laces. They each have a formula to figure out the profit they will get.
	+ f(x) formula for profit: 2x + 3
		- This formula says that this company gets $2 for every shoe lace they sell, plus an additional $3 to cover shipping costs.
	+ g(x) formula for profit: 3x – 1
		- This formula says that this company gets $3 for every shoe lace they sell, minus $1 for labor costs.
* To find out how many shoe laces each company will have sold when the two companies have an equal profit, we set the two equations equal to each other.
	+ 2x + 3= 3x – 1
* Solve! You can solve by using the skills of combining the variables and treating the problem like a two-step equation
	+ 2x + 3 = 3x – 1

**-2x -2x**

 3=1x – 1

 **+1 +1**

4 = x

* This answer tells us that when each company has sold 4 pairs of shoe laces, there profits will be the same

**In your own words, explain the idea of f(x) = g(x):**

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**f(x) = g(x) practice. Number code game!**

**Rules of the game: Start with question 1. Each answer will be the number of the next question you should complete. For example, if your answer is 5, then go to question 5 next. The answer to 5 will tell you which answer to move on to!**

**On the bottom of the page is a place to write in your number code! Write the order in which you completed the problems in the blanks. #1 is filled out for you!**

**Solve f(x) = g(x)**

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| --- | --- |
| 1) f(x) = 2.4 – 0.8x g(x) = 1.2x – 3.6 | 6) f (x) = 3x + 9 g(x) = 5 + 5x |
| 2) f(x) = 0.2x – 8 g(x) = 0.6x – 10 | 7) f(x) = 12 + 4.5x g(x) = 0.5x + 52  |
| 3) f(x) = 17x – 32.6 g(x) = 87.4 – 3x  | 8) f(x) = 1.5x – 16 g(x) = 2.5x – 17 |
| 4) f(x) = 21.3 + 3.1x g(x) = 5.1x + 3.3 | 9) f(x) = -123.4 + 6x g(x) = 2x – 91.4 |
| 5) f(x) = 6.2x + 12 g(x) = 3.2x + 33 | 10) f(x) = 12.7x + 13 g(x) = -15 + 19.7x |

Number Code:

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