

--- Day 13: Claw Contraption ---

Next up: the **lobby** of a resort on a tropical island. The Historians take a moment to admire the hexagonal floor tiles before spreading out.

Fortunately, it looks like the resort has a new **arcade**! Maybe you can win some prizes from the **claw machines**?

The claw machines here are a little unusual. Instead of a joystick or directional buttons to control the claw, these machines have two buttons labeled **A** and **B**. Worse, you can't just put in a token and play; it costs **3 tokens** to push the **A** button and **1 token** to push the **B** button.

With a little experimentation, you figure out that each machine's buttons are configured to move the claw a specific amount to the **right** (along the **X** axis) and a specific amount **forward** (along the **Y** axis) each time that button is pressed.

Each machine contains one **prize**; to win the prize, the claw must be positioned **exactly** above the prize on both the **X** and **Y** axes.

You wonder: what is the smallest number of tokens you would have to spend to win as many prizes as possible? You assemble a list of every machine's button behavior and prize location (your puzzle input). For example:

Button A: X+94, Y+34
Button B: X+22, Y+67
Prize: X=8400, Y=5400

Button A: X+26, Y+66
Button B: X+67, Y+21
Prize: X=12748, Y=12176

Button A: X+17, Y+86
Button B: X+84, Y+37
Prize: X=7870, Y=6450

Button A: X+69, Y+23
Button B: X+27, Y+71
Prize: X=18641, Y=10279

This list describes the button configuration and prize location of four different claw machines.

For now, consider just the first claw machine in the list:

- Pushing the machine's **A** button would move the claw **94** units along the **X** axis and **34** units along the **Y** axis.
- Pushing the **B** button would move the claw **22** units along the **X** axis and **67** units along the **Y** axis.
- The prize is located at **X=8400, Y=5400**; this means that from the claw's initial position, it would need to move exactly **8400** units along the **X** axis and exactly **5400** units along the **Y** axis to be perfectly aligned with the prize in this machine.

The cheapest way to win the prize is by pushing the **A** button **80** times and the **B** button **40** times. This would line up the claw along the **X** axis (because **80*94 + 40*22 = 8400**) and along the **Y** axis (because **80*34 + 40*67 = 5400**). Doing this would cost **80*3** tokens for the **A** presses and **40*1** for the **B** presses, a total of **280** tokens.

For the second and fourth claw machines, there is no combination of A and B presses that will ever win a prize.

For the third claw machine, the cheapest way to win the prize is by pushing the **A** button **38** times and the **B** button **86** times. Doing this would cost a total of **200** tokens.

So, the most prizes you could possibly win is two; the minimum tokens you would have to spend to win all (two) prizes is **480**.

You estimate that each button would need to be pressed **no more than 100 times** to win a prize. How else would someone be expected to play?

Figure out how to win as many prizes as possible. **What is the fewest tokens you would have to spend to win all possible prizes?**

Your puzzle answer was **35729**.

The first half of this puzzle is complete! It provides one gold star: ★

--- Part Two ---

As you go to win the first prize, you discover that the claw is nowhere near where you expected it would be. Due to a unit conversion error in your measurements, the position of every prize is actually **10000000000000** higher on both the **X** and **Y** axis!

Add **10000000000000** to the **X** and **Y** position of every prize. After making this change, the example above would now look like this:

Button A: X+94, Y+34
Button B: X+22, Y+67
Prize: X=10000000008400, Y=10000000005400

Button A: X+26, Y+66
Button B: X+67, Y+21
Prize: X=10000000012748, Y=10000000012176

Button A: X+17, Y+86
Button B: X+84, Y+37
Prize: X=10000000007870, Y=10000000006450

Button A: X+69, Y+23
Button B: X+27, Y+71
Prize: X=10000000018641, Y=10000000010279

Now, it is only possible to win a prize on the second and fourth claw machines. Unfortunately, it will take **many more than 100 presses** to do so.

Using the corrected prize coordinates, figure out how to win as many prizes as possible. **What is the fewest tokens you would have to spend to win all possible prizes?**

Answer: [\[Submit\]](#)

Although it hasn't changed, you can still **get your puzzle input**.

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