

3. Zach's goal is to get the most bird-songs out of his limited resources. He has four limited resources: 396 sunflower seeds, 482 millet grains, 246 kernels of corn, and 593 crumbs of bread. He has designed two products for the birds: the Cheep dinner and the Squawky dinner. He predicts 2 lovely bird-songs for every Cheep dinner, and 3 loud bird-songs for every Squawky dinner. The resource usage and song production of each his products is listed in the following table:

	Seeds	Grains	Kernels	Crumbs	Songs
each Cheep dinner	4	6	2	8	2
each Squawky dinner	8	4	6	1	3
Available	396	482	246	593	

Zach's friend suggests that Zach feed the birds 51 Cheep dinners and 24 Squawky dinners.

Describe the effects of such a business decision by filling in the form:

Number of Cheep dinners:	51
Number of Squawky dinners:	24
Number of songs:	<u>174</u>
Leftover seeds:	<u>0</u>
Leftover grains:	<u>80</u>
Leftover kernels:	<u>0</u>
Leftover crumbs:	<u>161</u>

Number of songs:
 $51(2) + 24(3) = 102 + 72 = 174$

Leftover seeds:
 $396 - 51(4) - 24(8) = 396 - 204 - 192 = 0$

Leftover grains:
 $482 - 51(6) - 24(4) = 482 - 306 - 96 = 80$

Leftover kernels:
 $246 - 51(2) - 24(6) = 246 - 102 - 144 = 0$

Leftover crumbs:
 $593 - 51(8) - 24(1) = 593 - 408 - 24 = 161$

Give your own recommendation in the next form to increase the number of songs using only his limited resources #6 and #7 may be useful.

Number of Cheep dinners:	<u>71</u>	} From #6
Number of Squawky dinners:	<u>14</u>	
Number of songs:	<u>184</u>	
Leftover seeds:	<u>0</u>	
Leftover grains:	<u>0</u>	
Leftover kernels:	<u>20</u>	
Leftover crumbs:	<u>11</u>	

Leftover seeds:
 $396 - 71(4) - 14(8) = 396 - 284 - 112 = 0$

Leftover grains:
 $482 - 71(6) - 14(4) = 482 - 426 - 56 = 0$

Leftover kernels:
 $246 - 71(2) - 14(6) = 246 - 142 - 84 = 20$

Leftover crumbs:
 $593 - 71(8) - 14(1) = 593 - 568 - 14 = 11$