



Problem of the Week

Problem B and Solution

Planes in Formations

Problem

At an airshow, a World War II Lancaster bomber flies in formation with four Spitfire fighter planes, as shown in the picture on the left below. On the second pass, two Lancaster bombers fly in formation with six Spitfires, as shown in the picture on the right below.



- a) If there were more Lancasters, the pattern would continue. Therefore, there would be 3 Lancasters and 8 Spitfires in the next formation. Draw this formation and the next two formations and fill in the remainder of Table 1.

Suggestion: Use a small symbol to represent each of the two planes for easy drawing.

Lancasters	Spitfires
1	4
2	6
3	8
4	10
5	12

Table 1

- b) What if the Spitfires change their formations in two different ways, as shown in Tables 2 and 3? Fill in the remainder of each table, and then draw a possible formation to match each pattern.

Lancasters	Spitfires
1	6
2	10
3	14
4	18
5	22

Table 2

Lancasters	Spitfires
1	6
2	8
3	10
4	12
5	14

Table 3

- c) Draw another formation which follows a new pattern, and make a table of values for your pattern.





Solution

a) Table 1 is completed above. The diagram below shows the first four formations in this pattern. Two Spitfires are added for each added Lancaster.



L: Lancaster **s:** Spitfire

b) Table 2 is completed above. The diagram below shows a possible solution for the first three formations in this pattern. Four Spitfires are added for each added Lancaster.



L: Lancaster **s:** Spitfire

Table 3 is completed above. The diagram below shows a possible solution for the first four formations in this pattern. In this case, since only two Spitfires are added for each added Lancaster, there could be two Spitfires leading and two Spitfires following the Lancasters.



L: Lancaster **s:** Spitfire

c) Answers will vary. Students should be prepared to explain how the drawings of their formations match the patterns they describe.

