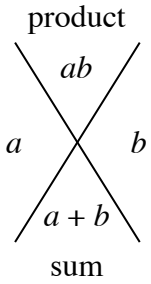
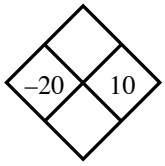
DIAMOND PROBLEMS 1.1.1

In every Diamond Problem, the product of the two side numbers (left and right) is the top number and their sum is the bottom number.

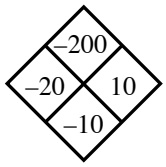
Diamond Problems are an excellent way of practicing addition, subtraction, multiplication, and division of positive and negative integers, decimals and fractions. They have the added benefit of preparing students for factoring binomials in algebra.



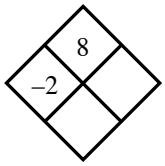
Example 1



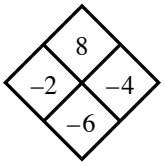
The top number is the product of –20 and 10, or –200. The bottom number is the sum of –20 and 10, or –20 + 10 = –10.



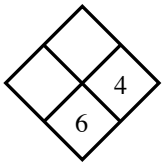
Example 2



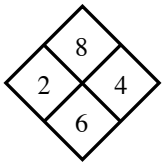
The product of the right number and –2 is 8. Thus, if you divide 8 by –2 you get –4, the right number.
The sum of –2 and –4 is – 6, the bottom number.



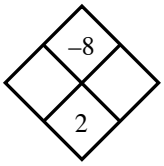
Example 3



To get the left number, subtract 4 from 6,
6 – 4 = 2. The product of 2 and 4 is 8, the top number.



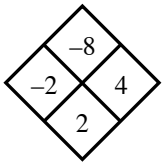
Example 4



The easiest way to find the side numbers in a situation like this one is to look at all the pairs of factors of –8. They are:

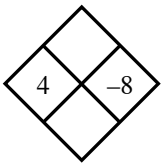
–1 and 8, –2 and 4, –4 and 2, and –8 and 1.

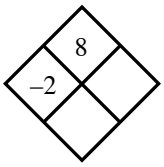
Only one of these pairs has a sum of 2: –2 and 4. Thus, the side numbers are –2 and 4.

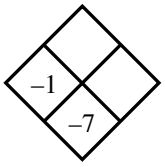


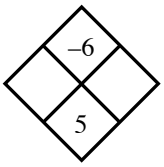
Problems

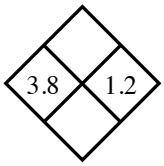
Complete each of the following Diamond Problems.

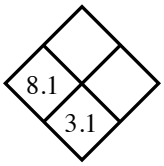
1. 

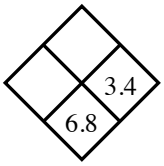
2. 

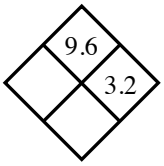
3. 

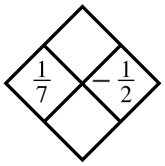
4. 

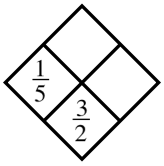
5. 

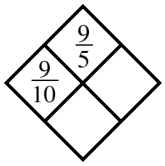
6. 

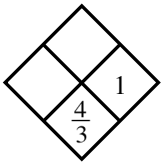
7. 

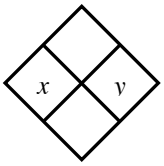
8. 

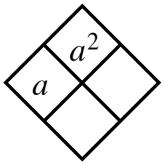
9. 

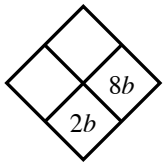
10. 

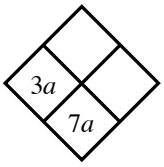
11. 

12. 

13. 

14. 

15. 

16. 

Answers

1. –32 and –4
2. –4 and –6
3. –6 and 6
4. 6 and –1
5. 4.56 and 5
6. –5 and –40.5
7. 3.4 and 11.56
8. 3 and 6.2
9. $-\frac{1}{14}$ and $-\frac{5}{14}$
10. $\frac{13}{10}$ and $\frac{13}{50}$
11. 2 and $\frac{29}{10}$
12. $\frac{1}{3}$ and $\frac{1}{3}$
13. xy and $x + y$
14. a and $2a$
15. $-6b$ and $-48b^2$
16. $4a$ and $12a^2$

