

Word Problems

Introduction to Algebra

Exercise I.

Illustrative Example. The sum of two numbers is 60, and the greater is four times the less. What are the numbers?

Solution.

Let x = the less number;
then $4x$ = the greater number,
and $4x + x = 60$,
or $5x = 60$;
therefore $x = 12$,
and $4x = 48$. The numbers are 12 and 48.

1. The greater of two numbers is twice the less, and the sum of the numbers is 129. What are the numbers?
2. A man bought a horse and carriage for \$500, paying three times as much for the carriage as for the horse. How much did each cost?
3. Two brothers, counting their money, found that together they had \$186, and that John had five times as much as Charles. How much had each?
4. Divide the number 64 into two parts so that one part shall be seven times the other.
5. A man walked 24 miles in a day. If he walked twice as far in the forenoon as in the afternoon, how far did he walk in the afternoon?
6. For 72 cents Martha bought some needles and thread, paying eight times as much for the thread as for the needles. How much did she pay for each?
7. In a school there are 672 pupils. If there are twice as many boys as girls, how many boys are there?

Illustrative Example. If the difference between two numbers is 48, and one number is five times the other, what are the numbers?

Solution.

Let x = the less number;
then $5x$ = the greater number,
and $5x - x = 48$,
or $4x = 48$;
therefore $x = 12$,
and $5x = 60$.

The numbers are 12 and 60.

8. Find two numbers such that their difference is 250 and one is eleven times the other.
9. James gathered 12 quarts of nuts more than Henry gathered. How many did each gather if James gathered three times as many as Henry?
10. A house cost \$2880 more than a lot of land, and five times the cost of the lot equals the cost of the house. What was the cost of each?

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solutions

Exercise 1.

1. 43; 86.
2. Carriage, \$375; horse, \$125.
3. C, \$31; J, \$155.
4. 8; 56.
5. 8 miles.
6. Needles, 8; thread, 64.
7. 224 girls; 448 boys.
8. 25; 275.
9. H, 6 qts.; J, 18 qts.
10. Lot, \$720; house, \$3600.

Problems from the book:

A First Book in Algebra
Wallace C. Boyd, A.M.
1895

Republished by:

www.picrust.com

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