

Re-arranging formula



Re-arrange a formula to make a different letter the subject, using the same inverse operations as solving an equation.

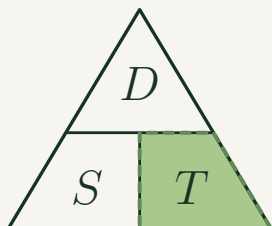
Name _____

Date _____

Cover the subject

In a product formula like $D = S \times T$, cover the letter you want: cover the top and multiply the other two; cover a bottom letter and divide the top by the other one.

Worked example The formula for distance is $D = S \times T$. Make T the subject.



Cover T : the triangle shows T over the divide line, under D , next to S .

$$\text{So } T = \frac{D}{S}.$$

1. The triangle shows $A = l \times w$. Use it to make w the subject.



2. The formula for speed is $S = \frac{D}{T}$. Make D the subject.

3. Given $y = x + 9$, make x the subject.

4. The formula for force is $F = ma$. Make a the subject.

5. The triangle shows $V = I \times R$. Use it to make I the subject.



6. Given $y = 5x$, make x the subject.

7. $P = 2L + 2W$. Make L the subject.

8. $y = 3x - 7$. Make x the subject.

9. A student re-arranges $y = 2x + 6$ to get $x = y + \frac{6}{2}$. Explain the error and give the correct re-arrangement.

Re-arranging formula (continued)



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10. $F = \frac{9}{5}C + 32$. Make C the subject.

11. $A = \frac{1}{2}bh$. Make b the subject.

12. Check: if $P = 2L + 2W$ with $L = 7$ and $W = 3$, is $P = 20$?

13. The cost of hiring a kayak is $C = 20 + 8h$, where h is hours. Re-arrange to make h the subject, then find h when $C = \$60$.

14. $y = \frac{x-4}{3}$. Make x the subject.

15. $I = PRT$. Make R the subject.

16. The perimeter of a rectangle is $P = 2l + 2w$. A rectangle has $P = 30$ cm and $w = 4$ cm. Re-arrange to make l the subject, then find l .

17. A student re-arranges $A = \frac{1}{2}bh$ to get $b = \frac{A}{2h}$. Explain the error and give the correct re-arrangement.

18. Why does re-arranging a formula use the same steps as solving an equation?
