

Using Trial and Error

Lesson 6-1

DATE

TIME

If you substitute a number for a variable in an equation and the result is a true number sentence, then that number is a solution to the equation. One way to solve an equation is to try several test numbers until you find a solution. Each test number can help you close in on an exact solution.

This trial-and-error method may not result in an exact solution, but you can come quite close to an exact solution.

Use trial and error to find a solution for $\frac{1}{x} + x = 4$. If you cannot find an exact solution, find a number that is very close to the solution. This table shows the results of substituting several test numbers for x :

x	$\frac{1}{x}$	$\frac{1}{x} + x$	Compare $(\frac{1}{x} + x)$ to 4
1	1	2	< 4
2	0.5	2.5	< 4
3	0.333 . . .	3.333 . . .	< 4
4	0.25	4.25	> 4

Based on the results above, it makes sense to try numbers between 3 and 4.

Results are rounded to the nearest thousandth.

x	$\frac{1}{x}$	$\frac{1}{x} + x$	Compare $(\frac{1}{x} + x)$ to 4
3.9	0.256	4.156	> 4
3.6	0.278	3.878	< 4

Keep going. Get as close as you can to the exact answer.

Round your results to nearest thousandth.

x	$\frac{1}{x}$	$\frac{1}{x} + x$	Compare $(\frac{1}{x} + x)$ to 4

Using Trial and Error (continued)

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For each equation, try to get as close as possible to the exact solution.
Use the suggested test numbers to get started. Round numbers to the nearest thousandth.

1 Equation: $2y * y = 47$

y	$2y$	$2y * y$	Compare ($2y * y$) to 47
1	2	2	< 47
5	10	50	> 47

My closest number: _____

2 Equation: $z^2 - 5z = 30$

z	z^2	$5z$	$z^2 - 5z$	Compare ($z^2 - 5z$) to 30
6	36	30	6	< 30
8	64	40	24	< 30
9	81	45	36	> 30

My closest number: _____