

A truck radiator holds 18 liters of fluid. How much pure (100%) antifreeze must be added to a mixture that is 4% antifreeze in order to fill the radiator with a mixture that is 20% antifreeze?

Let  $x = \#$  liters of pure antifreeze.

Let  $y = \#$  liters of 4% mixture of antifreeze.

Then  $x + y = 18$ , and  $\textcircled{1}$   
 $100\%x + 4\%y = 20\%(18)$   $\textcircled{2}$

is the system that solves this problem.

$\textcircled{1} x + y = 18 \Rightarrow x = 18 - y$

$\textcircled{2} x + .04y = 3.6$

$\Rightarrow (18 - y) + .04y = 3.6$

$\Rightarrow -.96y = -14.4$

$\Rightarrow y = 15 \text{ liters.}$   
 $\Rightarrow x = 3 \text{ liters.}$

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