Algebra 1 Bellwork Thursday, February 25, 2016

1. On a canoe trip I paddled upstream (against the current) for 6 hours and traveled 15 miles. Later I paddled downstream (with the current) for 4 hours and traveled 34 miles. Write and solve a system of equations to find the speed of the current and the speed that I can paddle in still water.

Equations and work here:

Put your answers here:

Speed of the boat =

Current speed =

2. You are going to mix together two kinds of juice. One of the juices has 15% sugar and the other has 6% sugar. How many quarts of each juice should you use so that you will end up with 48 quarts of a mixture that is 9% sugar?

Equations and work here:

Put your answers here:

Qts of 15% sugar juice =

Qts of 6% sugar juice =

Algebra 1 Bellwork Thursday, February 25, 2016 ANSWERS

1. On a canoe trip I paddled upstream (against the current) for 6 hours and traveled 15 miles. Later I paddled downstream (with the current) for 4 hours and traveled 34 miles. Write and solve a system of equations to find the speed of the current and the speed that I can paddle in still water.

Equations and work here:

b = speed of boat
c = speed of current

Upstream: $15 = (b-c)6$

Downstream: $34 = (b+c)4$

$2.5 = b - c$

$8.5 = b + c$

$11 = 2b$

$b = 5.5$

find c:

$b + c = 8.5$

$5.5 + c = 8.5$

$c = 3$

Put your answers here:

Speed of the boat = 5.5 mph

Current speed = 3 mph

2. You are going to mix together two kinds of juice. One of the juices has 15% sugar and the other has 6% sugar. How many quarts of each juice should you use so that you will end up with 48 quarts of a mixture that is 9% sugar?

Equations and work here:

x = qts of 15% juice
y = qts of 6% juice

TOTAL juice: $x + y = 48 \rightarrow y = 48 - x$

Just sugar: $.15x + .06y = .09(48)$, $.09(48) = 4.32$

$.15x + .06(48 - x) = 4.32$

$.15x + 2.88 - .06x = 4.32$

$.09x + 2.88 = 4.32$

$.09x = 1.44$

$x = 16$

$x + y = 48 \rightarrow y = 32$

Put your answers here:

Qts of 15% sugar juice = 16 QTS

Qts of 6% sugar juice = 32 QTS