Mixture Problems

10. Lou wants to make a coffee mixture to sell. He is going to mix Sumatra coffee which costs $2.50 per pound with Columbian coffee which costs $3.75 per pound. He wants to make 50 pounds of mix and he wants the cost of the mix to be $3.35 per pound. How many pound of each will he need?

11. Jackie wants to make a mixture of nuts to sell in her store consisting of hazelnuts and cashews. Hazelnuts cost $6.50 per pound and cashews cost $4.50 per pound. If Jackie wants 60 pounds total of mixture and the cost to be $5.10 per pound, how many pounds of each will she need?

12. A chemist wants to make 40 liters of 22.5% acid solution. She is going to make it by mixing a 10% acid and a 30% acid solution. How many liters of each will she need?

13. A chemist wants to make 75 liters of 16% acid solution. He is going to make it by mixing a 10% acid and a 25% acid solution. How many liters of each will he need?

Distance, Rate and Time Problems

14. A plane can travel 1,015 miles in 7 hours traveling against the wind. Traveling with the same wind, the plane can travel 820 miles in 4 hours. How fast can the plane travel in still air and how fast is the wind current?

15. Lance Armstrong can ride 162 miles on flat ground in 6 hours with a good breeze at his back. It takes him 10 hours to go 90 miles with the same breeze working against him. How fast is Lance going on a bike and how fast is the wind speed?

16. It takes Bob the boy scout 10 hours to paddle upstream (against the current) a distance of 15 miles. When he turns around he finds it only takes him 5 hours to paddle 22.5 miles with the current. How fast is Bob's boat going in still water and what is the speed of the current of the river?

17. A boat going upstream (against the current) travels 105 miles in 15 hours. It takes the same boat 7.5 hours to make the same trip when it is traveling back downstream (with the current). What is the speed of the boat in still water and what is the speed of the current of the river?

18. Flying from Tokyo to London is approximately 6175 miles. On the way to London from Tokyo (against the wind) the flight took 13 hours. The return flight (with the wind) took 9.88 hours. Find the speed of the plane in still air and the speed of the wind current.

Answers:

10) 16 lbs. of Sumatra and 34 lbs. of Columbian
11) 18 lbs Hazelnuts and 42 lbs. Cashews **12)** 15 liters 10% and 25 liters 30%
13) 30 liters 25% and 45 liters 10% **14)** Plane speed=175mph, Wind speed= 30mph
15) Lance=18mph, Wind speed= 9mph **16)** Bob's boat= 3mph, Current = 1.5 mph
17) Boat Speed = 10.5 and Water Current = 3.5
18) Plane speed=550 and Wind Current = 75