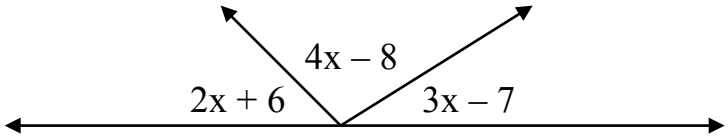
Algebra I Homework #7

1) The sum of two numbers is fifty-two. If seven less than triple the smaller number is four more than twice the larger number, find the two numbers.

2) Simplify: $\dfrac{-3^2-(-2-1)^3-12\div 3(3-1)-4^0}{-(-1-2)^2-(-2+1)^3-1^{12}-(-1-1)^0}$

3) Find the size of all three angles in the following drawing:



4) Solve: $-3^3-2(3x-7)-5x-(-1-1)^4=-2^3-5(3x-6)-8^0-x$

5) Solve $\dfrac{7}{12}x+\dfrac{5}{8}=\dfrac{11}{9}x-\dfrac{1}{18}$

6) Max leaves a town at 8 a.m., going 53 mph, traveling east. Tim leaves the same town at 11 a.m. going 71 mph, traveling in the same direction. What time of day will it be when Tim is 201 miles ahead of Max?

7) Barbara has 12 pounds of chocolate that cost $7.50 per pound. She wants to add some peanut butter that cost $5.25 per pound. How many pounds of peanut butter does she have to add in order to get a mixture that costs $6.15 per pound?

8) How much 24% acid solution should be mixed with 12 gallons of a 68% acid solution in order to make a 40% acid solution?

9) Kristen leaves a town at 7 a.m., going 38 mph, traveling north. Faith leaves the same town at 8 a.m. going 55 mph, traveling south. What time of day will it be when Kristen and Faith are 782 miles apart?

10) Bianca has 10 pounds of oranges that cost $6.75 per pound. She wants to mix that with some grapes that cost $3.25 per pound. How many pounds of grapes does she have to add in order to get a mixture that costs $4.50 per pound?

11) How much 37% acid solution should be mixed with some 81% acid solution in order to make 84 gallons of a 48% acid solution?

12) Mark leaves a town at noon, going 51 mph, traveling west. Chris leaves the same town at 2 p.m. going 68 mph, traveling in the same direction. What time of day will it be when Chris catches Mark?

13) Amanda has $6.71 in her pocket consisting of quarters, nickels, and pennies. If she has twice as many quarters as nickels and one less penny than nickels, how many of each type of coin does she have?

14) How much pure water should be added to 14 gallons of a 54% acid solution in order to make a 28% acid solution?

15) Brett leaves a town at 10 a.m., going 62 mph, traveling south. Rob leaves the same town at 9 a.m. going 71 mph, traveling north. What time of day will it be when Brett and Rob are 603 miles apart?

16) Jacob has 18 pounds of raisins that cost $4.50 per pound. He wants to add some peanuts that cost $1.25 per pound. How many pounds of peanuts does he have to add in order to get a mixture that costs $3.50 per pound?

17) How much pure acid should you mix with 32 gallons of a 54% acid solution in order to make an 84% acid solution?

18) Amy leaves a town at 6 a.m., going 47 mph, traveling east. Mary leaves the same town at 8 a.m. going 72 mph, traveling in the same direction. What time of day will it be when Mary is 281 miles ahead of Amy?

19) A movie theater's gross receipts for one night are $5,498 and 542 people attended. Adult tickets cost $12, tickets for seniors cost $8, and tickets for children cost $5. If twice as many adults went to the movies that night than seniors, how many of each type of ticket were sold?

20) How much 64% acid solution should be mixed with 12 gallons of a 28% acid solution in order to make a 58% acid solution?