



97. A man is 9 times as old as his son. In 3 years, the father will be only 5 times as old as his son. What is currently the difference in their ages?
A. 21 C. 24
B. 27 D. 30
98. A girl has 2 more nickels than dimes and 3 more quarters than nickels. She has \$3.35 in all. How many dimes does she have?
A. 5 C. 7
B. 9 D. 10
99. A train traveling 50 miles an hour left a station 40 minutes before a second train traveling 55 miles an hour. How long should it take for the second train to overtake the first train?
A. between 4 & 5 hrs C. between 6&7 hrs
B. between 5 & 6 hrs D. between 7&8 hrs
100. Candy worth 30 cents a pound is mixed with candy worth 12 cents a pound to make a mixture of 300 pounds worth 18 cents a pound. How many pounds of the more expensive candy must be used?
A. 100 C. 150
B. 200 D. 250
101. John bought a pencil and received change worth \$13. He received 10 more dimes than nickels and 22 more quarters than dimes. How many dimes did he receive?
A. 10 C. 20
B. 42 D. 24
102. If one number is three times as large as another number and the smaller number is increased by 19, the result is 6 less than twice the larger number. What is the larger number?
A. 21 C. 15
B. 18 D. 24
103. The sum of three consecutive integers is 306. What is the largest integer?
A. 112 C. 130
B. 103 D. 122
104. The sum of twice one number and three times another number is 23 and their product is 20. Find the sum of the two numbers.
A. 12 C. 9
B. 7 D. 10

105. Coffee worth \$1.05 per pound is mixed with coffee worth 85¢ per pound to obtain 20 pounds of a mixture worth 90¢ per pound. How many pounds of coffee worth \$1.05 is used?
A. 5 pounds C. 10 pounds
B. 15 pounds D. 12 pounds
106. Solution A is 50% hydrochloric acid, while solution B is 75% hydrochloric acid. How many liters of each solution should be used to make 100 liters of a solution which is 60% hydrochloric acid?
A. A=40 ; B=60 C. A=60 ; B=40
B. A=30 ; B=80 D. A=70 ; B=30
107. A wallet contains the same number of pennies, nickels, and dimes. The coins total \$1.44. How many coins does the wallet contain?
A. 19 C. 12
B. 21 D. 27
108. In his wallet, Josh has one-dollar bills, five-dollar bills, and ten-dollar bills. The total amount in his wallet is \$43. If Josh has four times as many one-dollar bills as ten-dollar bills, and all together, there are 13 bills in his wallet. How many one-dollar bills does he have?
A. 3 C. 8
B. 5 D. 2
109. A coffee vending machine has \$41.25 in it. There are 255 coins total and the machine only accepts nickels, dimes and quarters. There are twice as many dimes as nickels. How many of each coin are in the machine.
A. 45 nickels, 90 dimes, 120 quarters
B. 82 nickels, 41 dimes, 132 quarters
C. 8 nickels, 16 dimes, 231 quarters
D. 10 nickels, 26 dimes, 219 quarters
110. Sarah has 71 coins in her wallet consisting of 10 peso, 5 peso coin, and 1 peso coins. if she has 3 fewer 10 peso coins than 3 times as many as 5 peso coins, and the 1 peso coins are 2 more than twice the 5 peso coins, how much money does she have in her wallet?
A. 362 C. 416
B. 326 D. 214

God bless!

WORD PROBLEMS IN ALGEBRA

I. AGE PROBLEMS

Age problems in algebra are especially tricky because they relate information that is going on now to the information that has gone on in the past or that will be going on in the future. This type of problem must be solved by giving emphasis on the tenses of the statement involved.

It is recommended to assume the present age to be the reference in solving age problems and just add the number of years to come or subtract the number of years passed for future and past ages, respectively.

MODIFIERS OF TIME FOR CLASSIFICATION OF AGES

Time	Modifier	Meaning
PAST	years ago years back was at that time in the last....	All indicate periods back into the past, and imply subtracting such number of years from the present ages of the parties involved.
PRESENT	ages now at present	All carry the same meaning and indicate period in the present time.
FUTURE	years from now years hence years after In (number of)years	All indicate periods in the future, and imply adding such number of years to the present ages of the parties involved.

Other modifiers:

Decade	- 10 years
Century	- 100 years
Millennium	- 1000 years

II. WORK PROBLEMS

BASIC ANALYSIS:

- ✓ **Work rate of an individual:** (Rate analysis)

$$\left(\text{Work rate of an individual} \right) = \left(\frac{1}{T} \right)$$

Example:

If a person alone can finish a certain job in 8 days, then his **rate of doing work** is:

$$\text{Rate} = \left(\frac{1}{8} \right)$$

If two people A and B worked together and finished the job in **T** days, then, the **sum of their individual rate is equal to their combined rate.**

Note:

$$\frac{1}{A} + \frac{1}{B} = \frac{1}{T}$$

This concept can be extended to three or more people working together.

$$\frac{1}{A} + \frac{1}{B} + \frac{1}{C} + \dots = \frac{1}{T} \text{ (combined rate)}$$

Where:

T = Total time to finish the job if all working together

✓ **Work done by an individual:**

$$\left(\text{Work done by an individual} \right) = \left(\text{Work rate of an individual} \right) (\text{Time})$$

✓ **For two or more individual working together:**

$$\left(\frac{1}{A} + \frac{1}{B} + \frac{1}{C} + \dots \right) T = 1 \text{ (complete work)}$$

III. MIXTURE PROBLEMS

A mixture is a combination of two or more substances in some fixed proportion, more or less uniformly distributed throughout the product form and then determining some quality (percentage, price, amount, etc) of the resulting mixture.

