

### 3.6 Applications

Name \_\_\_\_\_

**1.** One number is 18 more than a second number. If their sum is 62, find the two numbers.

**2.** One number is 9 less than another number. If their sum is 47, find the two numbers.

**3.** Nancy is nine years older than Lisa. In two years she will be four times as old as Lisa. Find their present ages.

**4.** Sean is four years older than Stacy. In 5 years, the sum of their ages will be 38. Find their present ages.

Answers: **1.** 22 and 40; **3.** Nancy is 10, Lisa is 1

**5.** A collection of nickels and dimes contains 6 more dimes than nickels. The total value of the collection is \$1.95. How many nickels and how many dimes are in the collection?

	dimes	nickels	Total
No. of coins			
Value of coins			

**6.** A collection of nickels and dimes contains 3 fewer dimes than nickels. The total value of the collection is \$1.35. How many nickels and how many dimes are in the collection?

	dimes	nickels	Total
No. of coins			
Value of coins			

**7.** Dorothy invested her income tax return in two separate accounts. She invested part of it at 7% interest and triple that amount at 11% interest. The total first-year interest from the two investments was \$120. How much did she invest at each rate?

	7%	11%	Total
Amount invested			
Interest earned			

**8.** Lee invested part of his inheritance at 6% interest and four times that amount at 11%. The total first year interest from the two investments was \$1000. How much did he invest at each rate?

	6%	11%	Total
Amount invested			
Interest earned			

Answers: **5.** 9 nickels and 15 dimes; **7.** \$300 at 7% and \$900 at 11%

**9.** How many grams of an alloy that is 90% gold should be melted with 40 grams of an alloy that is 30% gold to produce an alloy that is 50% gold?

	90%	30%	50%
Grams of alloy			
Grams of gold			

**10.** How many grams of an alloy that is 70% silver should be melted with 60 grams of an alloy that is 20% silver to produce an alloy that is 30% silver?

	70%	20%	30%
Grams of alloy			
Grams of silver			

**11.** How many liters of a 44% saline solution and of 2% saline solution should be mixed to obtain 30 liters of the doctor's recommended 30% saline solution?

	44%	2%	30%
Liters of solution			
Liters of salt			

**12.** A farmer needs to mix a 20% nitrogen solution with a 50% solution to obtain 45 gallons of a recommended 40% solution. How many gallons of each solution should he use?

	20%	50%	40%
Gallons of solution			
Gallons of nitrogen			

Answers: **9.** 20 grams of 90% alloy; **11.** 20 gallons of 44% solution and 10 gallons of 2% solution