# **Homework 9**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Joni is watching her baby sister stack blocks and has discovered that there’s an actual pattern! How many blocks would the 7th tower have?



1. What number does N represent?

42 × 25 = 21 × N

1. In her piggy bank, Maggie has $1.28. If she knows that she has the same number of pennies, nickels, and dimes in the piggy bank, how many total coins does she have in the piggy bank?

1. You save $35 each week. Right now, you have $100. You plan to save enough for a trip that costs $1,010. How many weeks from now will you have enough money for the trip?
2. A fisherman sold some big fish at $4 each and twice as many small fish at $1 each. He received a total of $72 for the big and small fish. How many big fish did he sell?
3. Kristen has had her cat since it was a kitten. She said, “If you multiply my cat’s age by 4, and then divide by 12, you get 5.” How old is Kristen’s cat?
4. Mike thought of a number that the rest of his class was trying to guess. He told them that if you triple his number, it is the same as if you add 64 to his number. What is Mike’s number?
5. Seth was trying to guess what page his sister was reading. She gave him the following hint: If I add the page I am reading to the page before, plus the page after, I get 276. What page is Seth’s sister reading?
6. Your piggy bank has the same number of pennies, nickels, dimes and quarters. They are worth $9.43. How many of each coin do you have?
7. The sum of five consecutive whole numbers is 45. What is the least of the five numbers?
8. On a 100 cm measuring stick, marks are made at 19, N, and 99 cm, from left to right. The distance between the marks at N and 99 cm is three times the distance between the marks at N and 19 cm. What number is N?
9. Ana divides the number N by 8 and gets 0.25 as her answer. Barney multiplies the same number N by 8. What answer did Barney get?

**Solutions to Homework 10 – Algebra Part I**

1. Let T be the tower number (e.g., 1, 2, 3, 4, etc.).

Let B be the number of blocks in that tower.

B = (number of horizontal blocks) + (number of vertical blocks) - 1

(Minus one at the end, so that we don’t end up counting the corner block twice.)

B = (T) + (2 × T - 1) – 1

T = 7, because we want to know the number of blocks in the seventh tower.

B = 7 + (2 × 7 – 1) – 1

B = 19

**Answer: 19 blocks**

1. **N = 50**

42 × 25 = 21 × N

1050 = 21 × N

N = 1050 ÷ 21

N = 50

1. Let C be the number of pennies.

Let C be the number of nickels (same as number of pennies).

Let C be the number of dimes (same as number of pennies).

(C × $0.01) + (C × $0.05) + (C × $0.10) = $1.28

C × ($0.01 + $0.05 + $0.10) = $1.28

C × $0.16 = $1.28

C × 0.16 ÷ 0.16 = 1.28 ÷ 0.16

C = 8

So 8 pennies, 8 nickels, and 8 dimes.

**Answer: 24 coins**

1. Let W be the number of weeks it will take you to save up for the trip.

 (W × $35) + $100 = $1010

(W × 35) + 100 – 100 = 1010 – 100

W × 35 = 910

W × 35 ÷ 35 = 910 ÷ 35

W = 26

**Answer: 26 weeks**

1. Let the number of big fish sold = x, so the number of small fish sold will be 2x. $4 times the number of big fish sold + $1 times the number of small fish sold = $72. 4x + 2x = 72; 6x = 72, x = 12.

**Answer: 12 big fish**

1. **15**

Let C = the cat’s age.

4 × C ÷ 12 = 5

4 × C = 5 × 12

4 × C = 60

C = 60 ÷ 4

C = 15

1. **Mike’s number is 32**

Let N = Mike’s number.

3 × N = N + 64

3N – N = 64

2N = 64

N = 64 ÷ 2

N = 32

1. **Page 92**

Let P = the page Seth’s sister is reading.

Then, the page before is (P-1), and the page after is (P + 1).

So all three pages added together:

P + P – 1 + P + 1 = 276

3P = 276

P = 276 ÷ 3

P = 92

1. **23 of each coin**

Let Y = the number of pennies in the bank.

Then Y is also the number of nickels, dimes, and quarters.

Then, the total value of the coins is:

1Y + 5Y + 10Y + 25Y cents = 943 cents

41Y = 943

Y = 943 ÷ 41

Y = 23

1. **7**

Let the least of the numbers = x. Then x + (x + 1) + (x + 2) + (x + 3) + (x + 4) = 45; 5x + 10 = 45; 5x = 35, so x = 7.

1. **N = 39**

The distance between the marks at N and 99 cm is (99-N).

The distance between the marks at 19 cm and N is (N-19).

We know that the first distance (99-N) is three times the second distance (N-19).

So,

 99 – N = 3 × (N - 19)

 99 – N = 3N - 57

 99 = 3N – 57 + N

 99 = 4N – 57

 99 + 57 = 4N

 156 = 4N

 156 ÷ 4 = N

 39 = N

1. **16**

First calculate N:

N ÷ 8 = 0.25

N = 0.25 × 8

N = 2

Now, Barney multiplies N by 8, so

 N × 8

 2 × 8

 16