

November 2014 Rookie Level

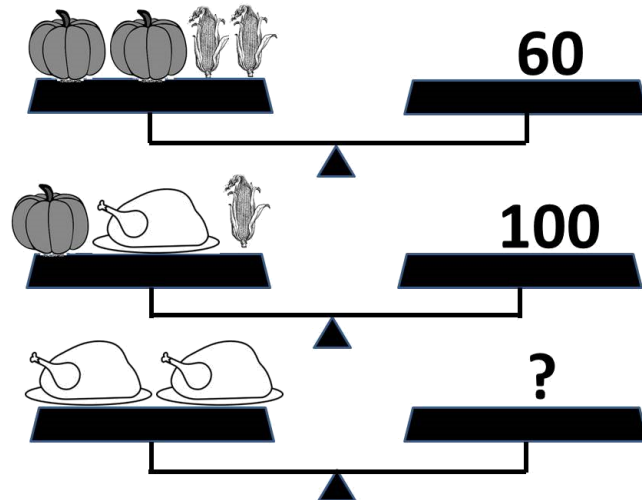
1) John has 18 tools on his workbench. He has twice as many screwdrivers as hammers. How many hammers are on his workbench?

2) Andrew buys an eraser for 30 cents. He pays for it with 2 quarters. How many different ways can Andrew get change back if there are pennies, nickels and dimes available?

3) Billie can put together a puzzle in 20 seconds. Charlotte takes 45 seconds to put together the same puzzle. After 3 minutes, how many more puzzles does Billie have than Charlotte?

4) A group of 48 teachers is taking 11 cars to a workshop. If each car has either 4 or 5 teachers, what is the number of cars carrying 5 teachers?

5) Use the balancing scales to determine how much the two turkeys weigh.



6) Maxine told Greg to pick a number, add 8 to it, double that sum, and then divide by 4. Greg said his answer was 10. What number did he start with?

November 2014 Rookie Level Answers

1) John has 18 tools on his workbench. He has twice as many screwdrivers as hammers. How many hammers are on his workbench?

6

2) Andrew buys an eraser for 30 cents. He pays for it with 2 quarters. How many different ways can Andrew get change back if there are pennies, nickels and dimes available?

9

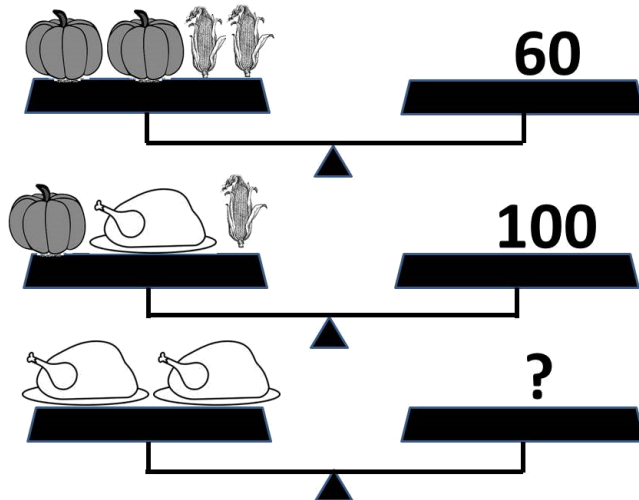
3) Billie can put together a puzzle in 20 seconds. Charlotte takes 45 seconds to put together the same puzzle. After 3 minutes, how many more puzzles does Billie have than Charlotte?

5

4) A group of 48 teachers is taking 11 cars to a workshop. If each car has either 4 or 5 teachers, what is the number of cars carrying 5 teachers?

4

5) Use the balancing scales to determine how much the two turkeys weigh.



140

6) Maxine told Greg to pick a number, add 8 to it, double that sum, and then divide by 4. Greg said his answer was 10. What number did he start with?

12

November 2014 Rookie Level Solutions

We are only providing some suggested solutions below- There are always multiple methods to solve problems.

1) Students can do guess and check or make a chart. There are 6 hammers on the workbench.

Hammers	Screwdrivers (2 x Hammers)	Total Tools (18)
1	2	3
2	4	6
3	6	9
4	8	12
5	10	15
6	12	18

6

2) Make an organized list. Start with one type of coin, use the most of that coin until you have used it up and proceed to the next coins using the same process. There are nine ways to make change.

Dimes	Nickels	Pennies
2		
1	2	
1	1	5
1	0	10
0	4	0
0	3	5
0	2	10
0	1	15
0	0	20

9

3) Billie can put together a puzzle in 20 seconds. So convert this to how many she can do in 3 minutes. Three minutes equal 180 seconds, so she can do $180/20 = 9$ puzzles. Charlotte takes 45 seconds to put together the same puzzle. $180/45 = 4$ puzzles. Nine puzzles minus four puzzles equals five puzzles more.

5

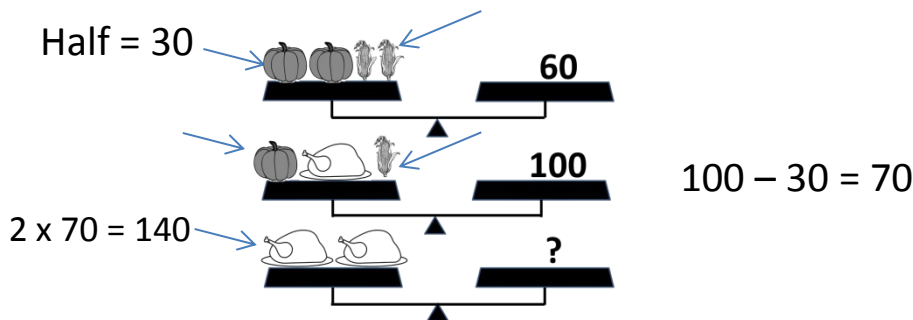
November 2014 Rookie Level Solutions

4) Make a chart to add up how many of each vehicle type and how many total teachers. There are four cars that have 5 teachers in them.

4 passenger cars	1	2	3	4	5	6	7
5 passenger cars	10	9	8	7	6	5	4
Total cars (11)	11	11	11	11	11	11	11
Total teachers (48)	54	53	52	51	50	49	48

4

5) Use logic. Two pumpkins plus two corns = 60. Therefore, half of this (1 pumpkin and 1 corn) = 30. The next equation has (1 pumpkin and 1 corn) plus one turkey = 100. Substitute 30 in for the (1 pumpkin and 1 corn) and the turkey = 70. Now you can solve for 2 turkeys. $2 \times (70) = 140$


140
6) Method 1

"X" will represent the number Greg picked. We need to add 8 to it and then multiply it by 2 and then divide it by 4 and the answer is 10.

Solve for X:

$$\frac{2(X + 8)}{4} = 10 \quad \rightarrow \quad 2(x + 8) = 40 \quad \rightarrow \quad x + 8 = 20 \quad \rightarrow \quad x = 12$$

Multiply both sides by 4 Divide both sides by 2 Subtract 8 from both sides

Method 2

Work backwards - Start with 10 and multiply by 4 which is 40. Divide this by 2 and you get 20. Subtract 8 and you will have 12. You can check your work now going forward.

12