

Math Challenge #8



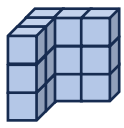
First Name: _____	Last Name: _____	Grade: _____
Teacher: _____	Parent's email: _____	

Toys

Welcome to Math Challenge #8. Welcome to our playful world of mathematical exploration, where toys become the gateway to unlocking intriguing mathematical challenges! In these toy-inspired mathematical problems, you will count building blocks, figure out the cost of toys, and decipher patterns in toy collections. Grab some friends (or adults) and work together to solve these problems.

Kinder & First Grade: solve at least 3 problems.
Second & Third Grade: solve at least 7 problems.
Fourth Grade and above: solve at least 12 problems.

Answer

1.	Olivia has 6 stuffed animals, and she wants to add 3 more to her collection. How many stuffed animals will Olivia have in total?	
2.	Sarah has saved \$12 to buy new toys. She finds a toy car for \$6 and a puzzle for \$5. How much money does she have left after buying both toys?	
3.	Tim is playing with cubes. He has 5 cubes already. How many more cubes does he need to build the structure shown in figure 1?	 <p>Figure 1</p>
4.	Half of Evan's collection of stuffed animals are bears. If he has 7 bears, how many stuffed animals does he have?	
5.	A toy store is running a promotion where customers can buy four toys for the price of three, but the cheapest toy is the free one. A customer buys 4 different toys with the following prices: \$28, \$35, \$37, and \$42. How much will the customer pay for the 4 toys with this promotion?	
6.	A toy store has a collection of various toy cars, each with a different price. John wants to buy a few toy cars, and he has \$20 to spend. The prices of the toy cars are \$4, \$5, \$6, \$7, \$9 and \$12. What is the maximum number of different (<i>or unique</i>) toy cars that John can buy within his budget?	

7.	Sal has 12 action figures, and Samara has 6 action figures. If they want to have an equal number of toys each, how many action figures should Sal give to Samara?	
8.	It takes 20 minutes to assemble one toy robot and another 5 minutes to package it. If a toymaker has to assemble 6 toy robots, how long, in hours and minutes, will it take to complete the task (assembling and packaging)?	
9.	Ethan has a collection of toy soldiers. He has 3 shelves to display his collection, and each shelf can hold 12 toy soldiers. If he already has 28 toy soldiers, how many more toy soldiers can he fit in the display?	
10.	<p>A toy store sells toy cars for \$8 each and toy trains for \$10 each. In a day, they sell 50 toy cars and 30 toy trains. If the store owner's cost for each toy car is \$5 and each toy train is \$7, calculate the store's total profit for the day.</p> <p><i>A profit is a financial gain, the difference between the amount earned and the amount spent in buying, operating, or producing something.</i></p>	
11.	A toy manufacturing company produces toy airplanes. A machine takes 2 hours to produce one toy airplane, and it can only process one toy airplane at a time. If the company has to manufacture 120 toy airplanes, how many hours will it take to complete the task if they have 3 machines working simultaneously?	
12.	<p>During a week-long toy drive organized by a school, the following data was gathered:</p> <ul style="list-style-type: none"> • On Monday, each of the 60 second graders, except 3 of them, brought 1 toy each. • On Tuesday, half of the 52 third graders brought 2 toys each, and the other half brought 1 toy each. • On Wednesday, a third of the 42 fourth graders brought 2 toys each, and another third brought 1 toy each. • On Thursday, a fourth of the 56 fifth graders brought 1 toy each, and another fourth brought 2 toys each. • On Friday, all of the 38 first graders participated, and each of them brought 1 toy. <p>How many toys were collected during the toy drive?</p>	
13.	A group of friends is solving a 1000 piece jigsaw puzzle. If they have completed $\frac{1}{3}$ of the puzzle in 45 minutes and continue at the same rate, how long (in minutes) will it take them to finish the rest of puzzle?	

14.	Three friends (Alina, Boris, and Camille) are working on a 750-piece jigsaw puzzle. If Alina completes $\frac{1}{5}$ of the puzzle, Boris completes $\frac{1}{4}$ of what's left, and Camille completes the remaining pieces, how many pieces did Camille complete?	
15.	<p>A toy store needs to reorder stock for action figures and building sets. They require at least 120 action figures and 100 building sets to meet customer demand. The supplier offers action figures in packs of 25 and building sets in packs of 15. What is the minimum number of packs of action figures and building sets the store needs to order to meet the demand for both products while minimizing excess inventory?</p> <p>Number of packs of action figures: ____</p> <p>Number of packs of building sets: ____</p>	
16.	A toy factory knows that 10% of the toys that they produce will have minor defects. If they want to ensure that at least 475 of the toys are defect-free, how many toy robots should the toy factory produce to be able to meet the target?	
17.	Jeanine has been collecting vintage toys for many years. She purchased a toy robot for \$160 in 2001. It was octuple (eight times as much) in value when she last checked in 2020. Since then, it has increased its value by 10% each year. What is the value of the toy robot in 2024? Round your answer to nearest whole dollar amount.	
18.	Three workers are tasked with assembling a complex toy that normally takes them 8 hours to complete. They start working together but one of them leaves after 2 hours. Then three hours later, two workers join in. How long will it take to complete the toy with this changing team? Assume that all the workers have the same skills and work with the same speed.	

Solution is available on February 2, 2024
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